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A Quantitative and Qualitative Inquiry into Moral Distress, Compassion Fatigue, Medication Error, and Critical Care Nursing

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Abstract

A correlational embedded mixed method design was used for this study. A purposive sample of 205 critical care nurses (CCNs) provided quantitative data for the study. A focus group interview of five CCNs provided the qualitative data. The Moral Distress Scale (MDS), Professional Quality of Life Scale (ProQOL), and Medication Administration Error (MAE) Scale and demographics form were used to measure quantitative data.

Quantitative findings included the majority of participants were female (91.7%); mean age 47 (SD = 7.91) years; mean years worked as a nurse was 23 (SD = 8.48); mean years worked on respective unit was 13.6 (SD = 8.45) and mean numbers of hours worked per week was 37 (SD = 8.45). Nineteen CCNs (9.5%) indicated they were considering leaving their current work position based on moral distress.

Statistically significant positive relationships between moral distress, compassion fatigue, and perceived mediation error were found. Simultaneous multiple regression was conducted to determine the accuracy of the IVs; moral distress and compassion fatigue in predicting medication scores while controlling for gender, age, work status, marital status, resignation based on moral distress and others. Regression results indicate the overall model significantly predicted the Medication Administration Error Subscale of Nursing Staffing, R^2 = .11; the subscale Disagree with Definition R^2 = .13, and the subscale Fear, R^2 = .13. A summary of regression coefficients indicates only one (moral distress) of the 10 variables significantly contributed to the models predicting Medication Administration Error Subscale of Nursing Staffing, and Fear. For the Disagree with

Definition subscale moral distress, compassion fatigue, and work status were the only variables that significantly contributed to the models.

Focus group interview data revealed several themes including *Process* or *Practice Issues, Staff Experience* and *Support, Negative Emotions* and *Other Nurses* were identified as key in understanding medication error. Nurses did not relate moral distress or compassion fatigue to medication errors directly.

This study contributed to the understanding of nurses' perceptions of medication error, moral distress, and compassion fatigue. Furthermore, an enhanced understanding of critical care nurses insight regarding medication error and power relations within the critical care environment was gained.

Dedication

I have been blessed with the love and caring of many family and friends during this journey. I am privileged to dedicate this work to the following individuals,

My Mom who always told me I could do it…love you mom!

Eula Mae your prayers and support encouraged me…thanks for sharing your son and family with me.

My son Michael Robert, your sense of humor helped me laugh when it got difficult…What up Dude?

My daughter Laura, your caring and perseverance have taught me much…let's go shopping Joe…

My husband Greg,- your love, support, and efforts helped to carry me through- you are indeed my best friend= We made it! Who would have ever thought…

My Dad - I love and miss you; wish you were here to enjoy the final product, you would be proud = this is for you!

My Lord and Savior, who has extended grace beyond measure for me,

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CHAPTER 1

The Problem and Background

The creation of patient-care environments that promote retention of nurses in concert with improvement of service provision, and mechanisms to evaluate the quality of care delivered, is a priority for health care executives, nationwide. Executives are striving to identify innovative strategies to improve overall patient care outcomes specifically safety issues, however the increased scrutiny of budgetary allocations in an environment of escalating health care costs coupled with increasingly complex patient care demands poses a daunting challenge. Nursing is at the forefront in the provision of client care and is held accountable for efficient and effective care that produces positive results, thus the linkage of nursing interventions and patient outcomes continues to be a priority for investigation.

Historically, the use of patient outcomes as measurement of quality care stems from the emphasis of managed care on the health care environment. As the influence and interest in managed care environments increased, so did the need to demonstrate that healthcare interventions, specifically nursing interventions, made a difference (Wong, 1998). Outcomes have been defined as the end result of care that focuses attention on the patient and their well-being (Wong). The use of nursing outcomes within the profession of nursing is not a new trend but one that is first suggested by Nightingale during the Crimean War (Wong). More recently, the relation of quality and nursing care have

received increased attention (Wong). There are conflicting findings regarding nursing influenced outcomes, patient outcomes, and the best methodology for measurement of patient outcomes (Urden, 2002).

In light of the increased focus on patient outcomes, patient safety, changing healthcare delivery systems, reimbursement issues, and the advent of evidence-based practice the desire and demand for substantial data on safe and effective nursing care exists (Gallagher & Rowell, 2003; Lang, 2005). Recently, the move to document the importance of the effectiveness of nursing interventions related to patient outcomes for patients has been ramped up through healthcare initiatives. The American Nurses Association (ANA) (1994) developed a safety and quality initiative that contributed to the linking of nursing science and delivered nursing care. Twenty-one nursing quality indicators were developed (ANA, 1994) and currently, more than 1089 hospitals nationwide participate in monitoring these indicators specific to nursing (ANA, 2007). As an adjunct to support the use of nurse sensitive indicators the National Quality Forum (NQF) as part of its mission to improve American healthcare has developed and endorsed 15 consensus standards for nurse sensitive care (NQF, 2003). Patient outcomes are now being used as the measurable endpoints for nursing care and interventions. Indeed, patient outcomes are held as a dominant mechanism by which healthcare executives and nurse leaders are held accountable for nursing practice (O'Connell & Warelow, 2001). The importance of measurement of nursing intervention effectiveness is significant in improving the care of the patients and furthering nursing science.

The grounding of nursing practice in evidence-based science has been supported to ameliorate negative patient outcomes (Lang, 2005). These hallmarks measuring

efficacy of care provided to the patient may be influenced by many variables. However, which outcomes to measure along with pragmatic measurement remain elusive (Urden, 2002). Medication errors have recently been suggested as a key area of focus for patient safety and nursing effectiveness within the acute healthcare environment (O'Connell & Warelow, 2001; Joint Commission on Accreditation of Hospital Organizations (JCAHO), 2006).

Medical Errors: An Indicator of Unsafe Practice and Work Environment

Patient safety has become a mandate within the healthcare industry that was spurred by the *Institute of Medicine's* (1999) *To Err is Human.* National attention has been drawn to healthcare with a focus on prevention and elimination of error. The World Health Organization (WHO, 2004) has identified patient safety as a priority for healthcare worldwide. Medical errors in general have been extremely costly, with medication errors alone accounting for a 3.5 billion dollar cost, affecting 1.5 million Americans (Natasha & Huminski, 2006). In 2005, the overall combined reporting of sentinel events revealed over 50% of medication errors related to the competency and credentialing of the staff administering the medications (JCAHO, 2005). Data for events in 2006 indicate almost 10% of sentinel events were due to medication errors (JCAHO, 2005). In 1999, the Institute of Medicine (IOM) (IOM, 1999) established between 44,000 to 98,000 medical errors resulted in patient deaths in acute care hospitals annually. Medication errors are a source of medical errors and have been identified as a patient safety priority by state and federal regulatory and funding agencies (JCAHO, 2005).

Balas, Scott, and Rogers (2004) identified a nursing error prevalence rate of 63% within a 28-day monitoring period with 57.7% of those being medication errors. The skill

of administration of medications is fundamentally acquired in nursing school and this function assumes a high priority in the professional nurse's scope of practice. Medication errors have recently become a priority patient safety initiative because of the potential harm that may be an outcome of a medication error. It has been recognized that life altering temporary or permanent patient harm, can occur due to medication errors (Fogarty & McKeon, 2006).

Medication Errors

Accused nurse appears in court (Treleven, 2006), was the quoted headline that appeared in the *Knight Ridder Tribune Business News* recently. The crime this nurse had allegedly committed was to administer the wrong medication to a patient that resulted in the patient's demise. Nurses at St.Mary's hospital were concerned not only for the nurse but for the ramifications, this criminal case may have on others who may make medication errors.

Very recently, the *US Federal News Service* (2006) reported on legislation introduced in the United States Senate to mandate hospital reporting of patient safety initiatives related to medications. Additional literature encourages employers to care about medication errors, citing additional hospital costs, reduced worker productivity, and increased disability payments as business concerns related to medication safety (Anderson, 2006).

Because medication administration has become a normalized routine carried out by the nurse a lack of understanding may exist regarding the complexity of the process. Nurses frequently administer many doses of prescribed medication within a twelve-hour shift of work in less than ideal patient care situations in critical care. Many times patients

are on advanced life support equipment and unable to respond verbally to identify themselves or offer feedback regarding their unique response to medications. Nurses themselves also experience many distractions and interruptions in the fast-paced high acuity critical care setting. Patient emergencies may occur which the nurse must attend to preserve life regardless of another patient's need for a routinely scheduled medication. Additionally, nurses may not perceive and recognize medication errors in the same manner as others. Pape (2001) provided an extensive review of current literature relating to medication errors. Issues that continue to elude definition or solutions are standardized definitions for medication errors across healthcare institutions, continuation of an institutional culture of blame, system issues to address nurse interruptions during medication preparation, barriers to reporting, abbreviation usage and physician handwriting. Nurses are integral to the medication process and may provide data on error identification. Remembering that medication errors may occur in many circumstances involving physicians, pharmacists or ancillary workers was key to moving from a blame oriented punitive approach to an open approach investigating all sources of real or potential error. Research is needed regarding the manner in which medication administration errors are perceived by practicing nurses to improve patient safety in this critical arena of healthcare provision.

Critical Care Nursing Practice Environment: Patient Safety and the Nurse

Critical care nurses attend to patients experiencing some of the most challenging healthcare illnesses in which life becomes extremely fragile and tenuous. The degree of invasive technology employed routinely in the critical care environment is maintained

and monitored by highly trained nurses. The outcomes of patient care are diligently monitored in this fast paced and often chaotic environment. Caring for patients amid distractions and competing priorities becomes a normalized part of nursing practice within the critical care environment, even though life itself may be very tenuous (Ulrich, et al., 2006). Additionally, the critical care nurse facilitates the outcomes or goals of the patient and family because of their proximity and presence at the bedside (Peter & Liaschenko, 2004). During the course of a work shift, the nurse may experience several opportunities to interact with the patient and family regarding care choices and treatments that may cause distress for either patient or staff. How these interactions may affect the patient's outcome, patient safety, and the nurse remains unknown.

The Critical Care Environment: Moral Distress and Compassion Fatigue

The critical care environment may create a situation that becomes detrimental to the very staff that is charged with the patients' care (American Association of Critical Care Nurses, 2004). Often times the expectations of the patient's, families, physicians or institution are in conflict with each other. The morally correct action to improve the patient's outcome may become unattainable. Moral distress, first defined by Jameton (1984), may be a consequence of maintaining the nurse-patient relationship.

Jameton (1984) defined moral distress as "knowing the right thing to do but institutional constraints makes it impossible to pursue or carry out the right course of action" p6. Moral distress has been studied in critical care nurses and supported through the work of Corley (2001) and others (Wilkinson, 1988; Meltzer & Missak-Huckabay, 2004; Sundin-Huard & Fahy, 1998). Findings have demonstrated issues such as unit

staffing trends, carrying out orders for unnecessary tests on terminally ill patients, deception through failure to take an action, or failure to tell the truth regarding actions not in the best interest of the patient, can create moral distress for the nurse (Corley, 2001). Nonetheless, there are no documented studies relating patient safety outcomes and moral distress within critical care nursing.

Compassion fatigue has been documented as an acute reaction to high stress situations in emergency response personnel (Figley, 1995). Historically found in the psychotraumatology literature the phenomenon has been studied in police officers, firefighters, psychology, and select nursing populations (Beaten & Murphy, 1995). Also known as, secondary traumatic stress disorder (STS), negative consequences associated with the disorder include, efforts to avoid thoughts or feelings about the event, avoidance of activities or events reminding of the event, anger, difficulty sleeping and concentrating, and hyper vigilance (Figley, 1995). Individuals, including nurses witnessing an acute traumatic event, experience these effects. Due to the invasive technology, complex surgical procedures, and other distressing and potentially traumatic circumstances that routinely occur in the critical care environment, critical care nurses may be at risk for developing compassion fatigue. Compassion fatigue has not been studied within the context of critical care nursing and its impact on patient safety outcomes is unknown.

As critical care nurses care for patients in which attainable outcomes become less clear or morally distressing and bear witness to traumatizing events the unspoken effect on the nurse becomes essential to examine. To date there have been no studies relating compassion fatigue and the study of moral distress in critical care staff. Additionally,

with increased emphasis on patient outcomes and patient safety, along with measurement of nursing effectiveness it was imperative to consider all potential sources of variation related to not only the process of care but also the context of care. Therefore, this research seeks to identify and examine relationships among the nurse's perception of medication administration errors, moral distress, and compassion fatigue in critical care nurses to determine the influence of moral distress and compassion fatigue on a patient safety outcome (nurses' perception of medication errors). The purpose of this mixed method research was to examine the nurses' perceptions regarding medication administration error, moral distress, and compassion fatigue, related to the patient safety outcome of perceived medication administration error. Finally, a focus group interview was conducted to gain a deepened view of the critical care nurses understanding of perceived medication error, moral distress, and compassion fatigue.

Conceptual Framework Introduction

The work of Italian philosopher Giorgio Agamben informs the framework guiding this study. Other nurse scholars (Wynn, 2002; Benedict & Georges, 2006; Georges & Benedict, 2006; Georges, 2008) have recently explored Agamben's philosophical thinking, particularly in the context of clinical nursing practice. Using the Nazi concentration camps as an exemplar case of the enactment of bio-power, Agamben's work exposes the precedence given to power and political voice at the expense of oppression by those in decisional capacity (Agamben, 1998). Agamben (1998) describes those individuals, perceived as the other or Zoë, sequestered in concentration camps and viewed as separate or apart from human form. Agamben (1998) reminds the reader of an

ancient Roman law called homo sacer. Homo sacer was a politically created state of man, a state of exception, in which extreme violence could be done to an individual (Agamben, 1998). Violence may take a physical form or a political form. The designation as homo sacer indicated the individual had no rights and could be killed through violence without the act being considered killing (Agamben, 1998). Additionally, persons existing in this state of exception were marginalized among society and had no political voice (Agamben, 1998). Agamben (1998) draws a distinction between two opposing concepts, that of Zoë, a bare life existence and bios a more highly valued political being. The context of Agamben's concepts of Zoë or bare life, and bios the individual, or political being (Agamben, 1998) are helpful to understand the lived experience of the nurse in the provision of care in the intensive care setting (Wynn, 2002).

Through their social contract with society, nurses historically have been charged with the responsibility of advocating or giving a voice to or for the patient and family who oftentimes are unable to do so for themselves. The proximity of the nurse (Peter & Liaschenko, 2004) to the patient in critical care and the presence of the nurse as the witness may generate moral distress in the nurse. Being with or acting on behalf of the patient, the nurse may experience moral dissonance enhanced by ethical dilemmas that, when left unresolved, may lead to moral distress. Thus, the role of critical care nurse as witness at the bedside may give rise to moral distress. The moral distress burden of the critical care nurse may further create or promote a detachment or withdrawal from the critical role of witness to the event.

Purpose and Aims

The overall purposes of this study are (1) to examine the relationship between moral distress, compassion fatigue, and the patient safety outcome of critical care nurses' perception of medication error; and (2) to obtain a deepened understanding of the nurses' experience of medication error, moral distress and compassion fatigue. The specific aims of the project are:

AIM 1

Examine the incidence of moral distress, compassion fatigue and perceived medication error among critical care nurses;

AIM 2

Describe the relationship of critical care nurses' moral distress, compassion fatigue, and demographics with nurses' perception of medication error;

AIM 3

Develop a broader understanding of how critical care nurses experience the phenomena of perceived medication administration error related to moral distress and compassion fatigue.

Chapter II

Literature Review

The purpose of this section is to provide a summary of pertinent literature as it relates to the patient outcome of medication error perception, and the role of moral distress and compassion fatigue experienced by the nurse in caring for patients in the critical care environment. Additionally, gaps in the literature are identified to establish the need for this study.

Patient Outcomes

Concern with patient outcomes has moved to the forefront in the documentation of effectiveness and efficiency of nursing care for nurses (O'Connell & Warelow, 2001). The linking of nursing interventions and patient outcomes has been analyzed and presents several unique challenges. Variables such as unit turbulence and reduction in personnel resources, individuality of patient characteristics, timing of measurement, nursing's lack of autonomy, and current work environment all influence the measurement outcomes attributable to nursing (O'Connell & Warelow).

The definition of outcome itself remains complex but is commonly thought of as the result of a treatment or intervention (Lang & Marek, 1991). Historically, a multitude of outcomes have been monitored including outcomes linked to medical diagnosis and patient safety (Lang & Marek). The American Nurses Association supports the

measurement of patient care outcomes as a means of reflecting the effectiveness of nursing actions in improving patient condition (Lang & Marek).

In an exploratory study, Middleton and Lumby (1999) interviewed 16 male patients who experienced orthopaedic surgery in Australia. In an attempt to measure outcomes from a patient perspective, patients were interviewed regarding their overall satisfaction with acute hospital stay. Interviews took place approximately 5 months after their surgical experiences and participants were asked what the nurse did during hospitalization that made a difference in outcome, both positive and negative. Negative responses were autologus blood transfusion to close to the day of surgery, cranky nurses, and cold-water showers. Positive responses were patient controlled analgesia, ice packs under the heels, and explanations given to the patient both pre and post operatively. The study supported the importance of nursing interventions and their value in measuring patient outcomes. The introduction of outcomes measurement from a patient's perspective was supported.

Thorsteinsson (2002) studied individuals with chronic illness to determine how patients perceive quality nursing care in Iceland. Eleven participants were individually interviewed in their homes to determine nurse attributes of quality care. Themes that emerged were sensitivity to patient needs, genuine concern, trust, humor, clinical competence, and patient teaching. Patients found lack of competence to be detrimental to their experience or outcome. Implications of the study suggest recruitment of nurses with positive attitude and caring were important, role models expressing caring skills were considered essential for teaching and learning caring behavior (Thorsteinsson). The importance of listening to patients was stressed as important to nursing practice as well.

The study suggests caring can be learned by role modeling which may vary across healthcare settings, additionally consistent interventions demonstrating caring have not been identified.

In a qualitative study of missed nursing care, registered nurses (n =107) were interviewed using a focus group technique (Kalisch, 2005). Interview questions were aimed at what care was missed and what were the reasons for the missing nursing care. Nine themes emerged from the data, as well as, the nurses' feelings about the missed nursing care. Feelings such as regret, guilt, and frustration emerged from the staff. Data such as these may relate to moral distress in nursing, in which nurses recognize the correct action but are immobilized due to circumstances beyond their control- unable to act.

Medication Error Incidence and Nurse's Perceptions

Historically, the administration of medications has been primarily a nursing responsibility. Guided by the physician's order, the nurse has been able to provide relief from pain and disease progression. Medication errors in nursing have been a source of concern in recent literature (Natasha & Huminski, 2006. Much discussion has occurred related to factors contributing to medication errors in nursing (Arndt, 1994; Gibson, 2001; O'Shea, 1999). However, many contributory factors outside the control of the nurse have been named (O'Shea, 1999). Medication safety has also been highlighted in relationship to patient safety. Intravenous (IV) medication safety was a major concern because of the narrow safety margin experienced with most IV medications (Nicholas & Agius, 2005). Nicholas and Agius (2005) reported 49% of all IV medication errors dealt with IV push medications, with the bulk of those dealing with administration of bolus

doses at faster than recommended rates. The use of infusion devices resulted in 35% of all medication errors resulting in harm to patients (Nicholas & Agius). Data such as this magnifies the need to address medication safety in the critical care environments where a high percentage of medications are given using the intravenous route. Critical care medication errors tracked from 2000 to 2004 resulted in 38,000 error reports. Errors that brought harm to patients in critical care were 83.7% or over 1,000 errors with 14 deaths noted (Santell, 2006). Mayo and Duncan (2003) cited adult critical care units as a frequent source for medication error with distraction, fatigue, and exhaustion ranked as the most frequent causes for medication errors as perceived by nurses. Additionally, the measured demographic characteristics (age, length of practice, work status, ethnicity, shift, educational preparation and shift worked) were not associated with survey responses including number of medication errors over the nurses' career (Mayo & Duncan, 2003). Due to the high variance in medication errors involving nurses all sources of potential error in the system of medication delivery need careful scrutiny to assess risks to patient safety.

O'Shea (1999) summarized literature related to factors contributing to medication errors. Ninety-seven articles were reviewed over a seven-month period. Most articles were American or Canadian in origin and reflected the multidisciplinary nature of medication errors. Contributing factors were math skills of the nurse, nurse and physician knowledge of the medication, specifically psychotropic medications. Length of nursing experience had no relationship to calculation skills; however, seniority did lead to more medication related errors. The length of nursing shifts supported the occurrence of more errors occurring during the day along with unit activities such as admissions, deaths, and

discharges. O'Shea (1999) also found an increase number of errors with temporary staff used however; there was a reduction in errors when regular staff worked the overtime shifts. Of note were the range of variables surveyed and the findings related to educational preparation and length of nursing experience. Interestingly, an increase in errors was reported with the use of a designated medication (functional system) nurse for an area. Adherence to medication administration policies by nursing staff was reported as poor, and distractions/interruptions were found to contribute to medication errors. The quality of prescriptions was found to be poor. Handwriting was difficult to read, and physicians themselves were found to deviate from hospital policy as well. Pharmacist error also occurred in the medication dispensing process due to poor quality of prescriptions as well.

Gibson (2001) questioned the truth of medication errors as they related to the hegemony of biomedical science and law. Gibson (2001) supported reviewing long held assumptions about medication errors in a critical feminist tradition. She notes the nursing voice of caring was lost among biotechnical science. The emphasis on nursing responsibility in medication practices has led to the formation of rules and rule based thinking with the outcome of nurses policing themselves against a measured standard. Gibson cites the use of medication error rates as a means of outcome measurement potentially leading to the thinking that nurses who make errors are distinguished as *bad nurses*. Interestingly, it was established that pharmacists published nursing educational medication information, and instructed nurses what and how to teach. Gibson (2001) went on to describe the disciplining of nurses as a means of maintaining the power relationship. Gibson (2001) challenges the reader to rewrite policies that provide nurses

with a safe and effective means of medication administration and make the best use of the nurses' clinical expertise.

On a similar note, Arndt (1994) analyzed the experience of the nurse making a medication error. Arndt (1994) explored what the error meant to the nurse, what guided the decision-making process, and what the result to the nurse was. Thirty-two nurses participated in single interviews in the international study. Five themes were identified. They were the procedure of dealing with medication errors, role of the medical staff, image of nursing, the situation of nursing students, and support in the error situation. Three key issues that were noted were subjection and power, guilt and shame, learning from mistakes and teaching. Of note were the findings that support the guilt and shame nurses felt and the need to earn trust and to be re-admitted into the nursing community in which they worked. Findings such as these support a link between moral distress and compassion fatigue when the actions, or lack of action for the nurse are called into question creating distress at knowing or witnessing the consequence of the error.

Consequences of fatal medication errors in healthcare providers were studied using secondary data analysis (Serembus, Wolf & Youngblood, 2001). Eleven cases were reviewed from a random sample of healthcare professionals (physicians $n = 402$, pharmacists $n = 112$, nurses $n = 208$). Participants were sent open-ended survey questions to describe their most serious drug errors and interventions used because of the drug error. A nine point rating scale was used with zero indicating no error and eight indicating death. After the return of the surveys, researchers selected 11 surveys that related to death of a patient. Two of the eleven errors reported directly involved nurses. Consequences of the errors reported were a wish to make amends, fear, nervousness,

insomnia, denial, guilt, cried, lost confidence, and lost coworker respect. Two subjects were fired and never worked again in that particular agency. Most reported a moderate level of impact with the error leaving an indelible memory in addition to guilt and sadness for the staff. Respondents also reported little support from colleagues and a sense of isolation. Although findings from the study cannot be generalized to other populations, the significance of the consequences underscores the importance of medication errors and assists in supporting a relationship between moral distress, compassion fatigue and the nurse.

Meurier, Vincent, and Parmar (1998) investigated the nurse's response to errors that were made. Using Attribution theory the assignment of blame to external or internal sources was reviewed. Sixty nurses participated in a two group design analyzing two error scenarios; one with a non-serious outcome and the other with a serious outcome. The cause of the error was then rated using nine semantic subscales with a nine-point scale regarding the scenario. Nurses in the serious outcome scenario attached slightly more importance to the error and assigned more of the responsibility to themselves ($p = <0.01$) than nurses in the non-serious outcome group. Both groups of nurses perceived the errors as internal, controllable, and unstable indicating a tendency for nurses to blame themselves for errors that occur irrespective of the outcome severity. Circumstances where nurses place blame for errors on themselves contribute to feelings of moral distress and compassion fatigue at not being able to control the error from occurring or not being able to concentrate to prevent error. Compassion fatigue may develop for the nurse after the trauma of experiencing a medication error as well.

Walker and Lowe (1998) studied nurses' beliefs regarding medication incident reporting in Australia. A new incident form was developed and trialed in six nursing units. Forty-three nurses participated in a focus group discussion examining a 20-question medication incident survey. Results of the study demonstrated nurses were more likely to report a medication error if patient safety was compromised and less likely to complete an error report if errors related to documentation of minor deviations from the original order written by the physician. Interviews with staff revealed self-preservation as a motive for not reporting errors and the individual assessment made by the nurse with regard to where the error is placed in the context of the patient experience. The experience of fear and concern in error reporting over time may contribute to compassion fatigue or moral distress in not being able to carry out what the nurses recognizes as the correct action. Nurses also revealed they preferred to work out the error among themselves rather than document the error. Positive themes that affected what the nurse reported included the *five rights* of medication administration, harm caused to the patient, and the desire to improve practice. Suggestions were aimed at addressing system related issues and not targeting the individual, support for anonymous reporting, direct observational studies, and a transfer of medication incident monitoring to the unit level. Of note was the difference in how medication errors were reported in Australia.

Stetina, Groves and Youngblood (2005) studied how nurses experience medication errors or nurse involvement with a medication error. Utilizing a Heideggerian approach to uncover the meaning of medication errors for nurses, six nurses provided one on one interviews responding to a semi-structured interview schedule. Reported findings centered on three themes: time is on our side, context counts, and reliance on systems.

Time on our side related to nurses not feeling as if the time is a critical to medication administration as right patient, drug, dose, and route. Context referred to the complexity of the nurse's role and the medication administration process. As an example if a nurse were involved in other unit activities that had a higher priority (resuscitation, unit emergencies) medication administration had a lesser priority. Reliance on systems discussed that nurses have come to rely on systems put in place by institutions to assist in medication errors reduction. However, the author's note, reliance on systems was not infallible. Additionally, the use of systems to reduce error does not preclude the nurse from performing the Five Rights of medication administration. Generalizability of the results beyond this specific sample are not recommended however, further studies of nurse perceptions and a clearer definition of medication errors would add clarity vital to this topic.

A randomized control trial with a dedicated medication nurse was implemented a two hospitals in an effort to reduce the reported 15.7% error rate (Greengold, et al., 2003). The hospitals were geographically separate academic centers. Hospital A had nurses working 12-hour shifts, three days per week and Hospital B employed nurses in eight-hour shifts, five days per week. Medication nurses were given a brief course on medication administration that dealt with safe medication use. Each nurse gave medications for as many as 18 patients. General nurses were considered those without the specialized education who delivered medications for 6 or less patients. Direct observation was used to account for drug errors and process variations. Results demonstrated that a dedicated medication nurse did not reduce the error rate experienced at either hospital. The error rate for medication nurses was 15.7% and general nurse error rate was 14.9%

($p = .84$). In comparison Hospital B had a higher rate of error occurrence (19.7% vs. 11.2%, $p = <.04$) to Hospital A. Of note was that nurses at Hospital B worked eight- hour shifts five days per week. Direct observation of the medication nurses may have influenced study findings. Results suggest that medication errors may occur despite increased staffing and shorter work shifts on a unit.

A descriptive study addressing organizational culture and the reporting of medication errors, originally begun as a continuous quality improvement effort, reported on barriers to medication administration errors (Wakefield, Blegen, Holman, Vaughn, Chrischilles & Wakefield, 2001). In a large convenience sample of nurses (2725 nurses) from six Midwest medical surgical hospitals participants were asked to describe unit culture type, CQI implementation and perceived medication administration error. Results demonstrate hospitals that were smaller tended to have more group-oriented cultures that supported CQI implementation and medication error reporting. Institutions that demonstrated a hierarchical structure reported less CQI implementation and less medication error reporting. There was no significant relationship reported relating why nurses do not report medication errors or the estimated percent of errors being reported.

Fogarty and McKeon (2006) studied medication administration and the influence of the organization and individual on unsafe practices and medication errors in rural Australia. The outcome of studying the 176 nurses was a structural equation model that demonstrated a link between organizational climate and individual distress, and morale, which affected quality of work life. Correlations suggest significant relationships between the errors, morale, and distress. The Queensland Public Agency Staff Survey (QPASS) was used to assess quality of work life. A Violations scale was developed to

measure how often in the past 12 months experienced nurses bent the rules when administering a medication. Answers were ranked on a five point likert scale. A structural equation was developed from the reported correlation matrix. The distress variable was related to violations and violations had an impact on errors. This study begins to demonstrate the impact of the work environment and psychologic well-being on nurse medication errors, specifically the potential of the nurse to experience moral distress and compassion fatigue related to medication errors.

A study addressing nurse distractions during medication administration demonstrated the effect of distraction within the medication administration process (Pape, et al., 2005). Specific distractions cited were multi-tasking, interruption, fatigue, and hurrying. Additionally, the ability of the nurse to become distracted because of a distressing circumstance or clinical site could be considered a distraction and contribute to compromising patient safety. The study was completed as a quality improvement project demonstrating that small changes in behavior and routine of the nurse can assist in the reduction of medication error. Nurses were asked to self-report a number indicating the severity of distractions on a scale of zero to ten for each of eight categories. Results demonstrated a reduction in distractions occurring after signs were place to serve as a visual aid and reminder not to disturb the nurse during the medication process (M prior to signage 42, M after signage 31, $p = .000$). The scope of the study addressed physical distraction and did not address the psychologic distraction that may be present as well.

In the first of two reported studies (Wakefield, Wakefield, Uden-Holman & Blegen, 1996) to describe nurses' perceived barriers to reporting medication administration errors was reported. A convenience sample of 1,384 nurses in 24 acute

care hospitals in Iowa participated in assisting in the identification of why staff nurses may not report medication errors. Over half (67.7%) of the RN's reported attaining an Associate degree or diploma level education. Seventy eight percent of respondents were staff nurses with 17.5% working in critical care settings. Instrument individual items with the highest mean scores (strongest agreement) were: no positive feedback for passing meds correctly (M = 4.2), could be blamed if something happened to the patient (M = 4.2), medication errors focus on the individual not the system (M = 3.9), nurses may not think the error was important enough to be reported (M = 3.65), nurses' believe other nurses will think they are incompetent (M = 3.64), and nurses fear adverse consequences from reporting medication errors (M = 3.59). Results were further analyzed and used in the development of an instrument to assess barriers to medication error reporting. Internal consistency was supported through subscales reliability scores (r = .74 to .85). Limitations in this particular study centered on regional differences that may limit generalizability and reliance on nurse perceptions rather than actual error data in this cross sectional study. The significance of this study was underscored by the valuable data used to develop a survey to assess the role of the nurse in the medication error and reporting process.

A study of the nurse's perception of why medication errors occur, conducted in 24 acute care hospitals in Iowa, demonstrated interruptions during the medication process and poor legibility were items attributed to medication errors (Wakefield, Wakefield, Uden-Holman & Blegen, 1998). The sample consisted of 1,384 participants with 67.6% associate or diploma level nurses. Seventy eight percent of the sample was staff nurses and almost nine percent were hospital managers. Additionally, managers perceived

individual nurse factors were the primary rationale behind why medication errors occurred while staff nurses viewed medication errors as stemming from physicians, pharmacists, and system factors. The overall findings supported five reasons why medication errors occur. Reasons were listed as physician, system, pharmacy, individual, and knowledge. Fear of reporting was discussed as a barrier between staff nurses and managers in reporting medication errors. Studies such as this are valuable in that they present the differences in medication error perception between staff and managers. Additional benefits to the study included a large sample size however conducting the study only in the state of Iowa limits the ability to generalize to other areas.

In a subsequent study to understand why medication errors are not reported (Wakefield, Wakefield, Holman, et al., 1999) 1,428 nurses participated from 29 Iowa acute care hospitals. Three areas assessed by the study were perception of why medication errors are not reported, reasons medication errors occur and the percentage of medication errors reported. The current study focused on why medication errors were not reported. Likert responses were analyzed on a six-point scale with 1 signaling the most agreement and 6 strongly disagreeing. Findings for why medication errors are not reported were disagreement over what constituted an error, amount of effort to report the error, fear of being viewed as incompetent, and the nature of the administrative response to the error. Additional problematic areas associated with medication error reporting are the voluntary nature, dependence on recognition of the error, assessment of the need to report the error, incident report preparation and follow-up response by the recipient of the report.

In this, the second of two studies to develop and validate a methodology to assess the nurse's perception of medication error reporting, Wakefield, Wakefield, Borders, Holman, Blegen, and Vaughn (1999) studied the nurses' perception of medication error reporting. Twenty-nine Iowa acute care hospitals participated as part of an ongoing quality health initiative. A convenience sample of 1,428 surveys was returned. Seventy percent of respondents reported Associate or Diploma training. The survey instrument contained three content areas, nurse perceptions of reasons for medication error occurrence, reasons why medication errors are not reported, and the estimated percentage of actual medication errors actually reported. Respondents were asked to respond to questions on a 10-point ordinal scale to allow for finer incremental unit reporting on the survey. Results demonstrated 60% of nurses perceive medication errors are reported however, analysis of specific intravenous and non-intravenous types of medications errors revealed perceived reporting decreased. A strength of both studies relates to the large sample size accessed in both studies (1994 & 1996 data) were consistent in their reporting of perception of medication errors reported. In order to track reduction of medication errors the current study supports studying both reported and perceived medication errors in a longitudinal manner.

Organizational culture, continuous quality improvement (CQI) and medication administration error reporting (Wakefield, Blegen, Holman, Vaughn, et al., 2001) were studied in six Midwest hospitals (N = 297 nurses) using a descriptive correlation cross section design. Findings supported that units representing a more group oriented culture (r = .72) had a higher rate of CQI implementation (r = .56) and higher medication error reporting rates. Those organizations with a hierarchical management culture had less CQI

implementation and more perceived barriers to medication reporting and lower perceived medication error reporting overall. At the individual level fear (p = .0001), disagreement over medication administration error definition (p = .0001), administrative response (p= .0001) and reporting effort (p = .0001) all reached significant levels. Studies such a this demonstrate the complexity of the medication administration process and variables which may affect the process.

Mayo and Duncan (2004) studied nurse perceptions of medication errors from a patient safety perspective in a large randomly selected sample of union represented nurses (N = 5000) in 16 Southern California acute care hospitals. Nine hundred eighty three registered nurses responded representing a 20% return rate for the surveys. The study included multiple practice areas in acute care including critical care. Research questions were centered on perception, evaluation, relationships of demographic variables and reporting of medication errors. Results demonstrated only 45.6% of the sample believed all medication errors were reported to the nurse manager. Most participants perceived medication errors were due to illegible handwriting, distraction and tired and exhausted nurses. Demographic variables demonstrated weak correlations between unit perception of medication errors (r = 0.21, p = .01) and percentage of errors and years of experience (r = 0.15, p = < .001). This study provided greater insight into the medication error process and reporting in a large random sample of nurses and how demographic variables were related to perceived medication error.

Medication Errors and Critical Care

Horns and Loper (2001) presented a case review format to highlight medication errors in the neonatal intensive care unit. A call for the reduction in punitive measures

was suggested. Each case reported represented an aspect of medication administration the nurse did not have exclusive control over. A recommendation to focus on processes that allowed the error to occur was proposed to avoid under reporting of errors, which was viewed as likely to occur in a *blame-oriented* culture. Horns and Loper (2001) suggest medication errors occur with greater frequency when nurses are busy, distracted, or short staffed. Distraction has also been found in persons suffering from compassion fatigue as well (Figley, 1995).

Balas, Scott, and Rogers (2004) completed a prevalence study to examine the nature of errors and near errors reported by hospital nurses. A random sample of three hundred ninety three full-time nurses was accessed through the ANA membership list. The study was conducted as part of a larger prospective national study to examine nurse fatigue and patient safety. Most participants were female (92%), white (79%), and had a mean age of 44 years. Participants primarily worked at hospitals with over 300 beds, 56% urban and 19% suburban, others worked in small towns (18%) or rural areas (7%). Logbooks were used to collect data over a 28-day period. One page was designated per day for the nurse to document the number of errors (including medications), other data collected included if the errors were caught prior, and if harm was incurred. Narrative notes were generated and examined for content and prevalence. Results demonstrated 30% of nurses made at least one error and 33% reported one near error. Total errors numbered 199. Forty-five participants made between two and five errors within 28 days and 37% indicated they had stopped themselves before they made between two to seven errors. Medication errors most often involved morphine, insulin, potassium, vasoactive medication, and chemotherapy medications. Thirty three percent of errors were due to a

late administration time. Twenty-four percent involved giving the wrong dose. Nurses also reported many distractions and interruptions when trying to pass medications. Balas et al.(2004) extrapolated the findings over the course of one year and determined nearly 5,000 medical errors would have occurred. An associated finding was that nurses could not assess new patients because of increased workloads, fatigue, and stress. Interruptions were a key finding, suggesting that nurses should minimize distractions while care giving. The success of the study was that the nurses felt safe enough to share their experience. Studies such as this provide a link that supports that level of fatigue and stress experienced by staff influences medication error prevalence. The study of critical care medication errors (23.8%) was included in the study as well.

A controlled trial of smart infusion pumps was conducted in a cardiac surgery intensive care unit (Rothschild, et al., 2005). Pump data was collected from 744 cardiac surgery admissions over eight weeks in a prospective time series trial and compared to data during a control period of usual practice. Interventions programmed into the infusion device were decision support during administration of meds, alerts, reminders, and unit specific dose-rate limits. Results indicated 219 IV medication errors occurred. Twenty-two adverse drug events (ADE's) occurred with 11 of them labeled as preventable during the intervention period. Eighty-two non-intercepted pump adverse events were noted during the intervention period. During the control period 28 ADE's occurred with 14 being preventable and 73 non-intercepted pump adverse events. The most common group of drugs affected was vasopressors and electrolyte concentrations. Violations of safety programming for the smart pumps totaled 571 during the study period. Medications were also frequently not documented by physician orders during both study periods.

Conclusions supported that smart infusion pumps did not reduce the IV medication error rate (Rothschild et al., 2005). The investigators suggested identifying nurse behaviors and technologic factors in improving smart pump use so that nurse behaviors are not able to bypass vital safety features. A key finding of the study was the identification of nurse behaviors linked to medication errors in the critical care environment.

Moral Distress Characteristics and Incidence

One source of ethical issues within nursing stems from the nurse-patient relationship as a result of the nurses' attempt to ameliorate conditions for their patients and foster health and well-being. Professional nursing practice can be defined morally because of the trusted nurse-patient relationship (Austin, Lemermeyer, Goldberg, Bergum & Johnson, 2005). Answering the patient's need was nursing's moral duty and obligation. Moral distress was not unique to the profession of nursing; many others in the helping professions acknowledge moral distress (Hanna, 2004). However, moral distress within nursing has also been recognized as a factor contributing to nurses leaving the profession, ultimately creating an unsafe patient care environment.

A requisite of moral distress was knowledge and recognition of the correct action. Often nurses do not have difficulty determining the correct course of action but circumstances in which the nurse must act prevent the action from being carried out (Jameton, 1984). Although Andrew Jameton (1984) was credited with defining moral distress, Nathaniel (2002) blended the definition with the work of Wilkinson (1988), Millette (1994), and Corley (2001) to include the psychological domain in the definition. Nathaniel (2002) defines moral distress as "the pain or anguish affecting the mind, body, and relationships in response to a situation in which a person was aware of a moral

problem, makes a moral judgment, and yet as a result of real or perceived constraints participates in moral wrong doing " (Nathaniel, 2002, p. 4). This description more vividly captures the psychologic potential of moral distress and circumstances the nurse experiences.

Kalvemark, Hoglund, Hansson, Westerholm, and Arentz (2004) studied moral distress in the context of Swedish healthcare system changes over the previous decade. The study, based on the definition by Jameton (1984), demonstrated an increase in ethical dilemmas within healthcare practitioners. A qualitative method with focus groups was used to interview cardiology, hematology, and pharmacy healthcare providers during a two-hour taped interview. Five to seven members participated in each group and a predetermined interview guide was developed to address areas of ethical dilemma or moral distress. Kalvemark et al. (2004) reported the themes that emerged from the data related to lack of staff, time and resources, conflicts of interest, and lack of supporting structures within the healthcare system. Overall several areas of distress and conflict were reported. Participants identified patients as their reason for being there and not the *source* of their distress. Lack of resources was viewed as most frustrating, while lack of time was ranked second. Conflict of interest was reported as a lesser distressing theme. Information on the make-up of the focus groups was not reported. The strength of the study was the expansion of the definition of moral distress to include *"negative stress symptoms involving ethical dimensions where the healthcare provider felt unable to protect or preserve all the values at stake"* p 1083 (Kalvemark et al.).

Wilkinson (1988) conducted a qualitative study to build substantive theory about the relationships between the moral aspects of nursing practice and the quality of patient

care. The purpose of the study was to describe moral distress as experienced by staff nurses in the acute hospital environment. Hospital nurses were interviewed about their lived experience of moral distress. A phenomenologic approach to data analysis was used. Results indicated prolonging life and unnecessary treatments were morally distressing for nurses (Wilkinson, 1988). Findings support the staff felt anger and frustration at those perceived to be in control of the distressing situation. Guilt at participating in and frustration at the inability to change the situation were also reported. A model of moral distress was proposed. Study implications suggest the amount of support given to nurse's shapes or influences the type of nurse that remains at the bedside. Conclusions recommend education of nursing instructors in ethical principles. Similar findings were supported by Kalvemark et al. in respect to educational needs of nurses. Details regarding sample size were not reported. The proposed model adds to the understanding of moral distress in nursing.

Moral distress has been studied in various nursing specialties including mental health and military nurses. Military nursing was studied by Fry, Harvey, Hurley, and Foley (2002). Thirteen United States Army nurses were interviewed and documented 10 moral distress narratives from their experience. Moral distress definitions developed by Jameton (1984) and Wilkinson (1988) were used as a framework for a proposed process model for moral distress specifically for military nurses (Fry et al., 2002). The nurses related stories from deployment, war events, and conflict battles such as Desert Storm, Somalia, and others (Fry et al., 2002). Clearly, military examples of moral distress are unique however; a more generalizable finding was the degree of reactive distress experienced by participants. Reactive distress was defined as unresolved moral distress

from a previous contact. The degree of reactive distress military nurses related was extremely high, in part, because the burden was carried with the nurse for years after the original event (Fry et al., 2002).

Moral distress was identified in mental health nurses in a Canadian study (Austin, Bergum & Goldberg, 2003). The purpose of the phenomenological hermeneutic study was to identify care situations the staff found morally distressing, describe the experience of raising ethical issues, and identify supports or barriers to ethical practice. Group interviews of 6-9 participants including physicians, nurses, psychologists, and social workers were asked to identify barriers to ethical practice (Austin et al., 2003). Nurses in this study felt great frustration, anger, and sadness at not being able to address the needs of their patients. Many of the nurses felt unable to fulfill their duty and commitment to their patients as outlined in the Florence Nightingale pledge (Austin et al.).

Erlen (2001) identified similar findings in a review article written on moral distress in *Orthopaedic Nursing*. Using the definition developed by Jameton (1984), Erlen found nurses reported feeling paralyzed in their clinical settings (Erlen, 2001). When nurses reported the distressing situations to their managers, they were told to do the best they could at the time. These nurses questioned whom they held their loyalty to, the patient or their employer (Erlen, 2001). Erlen's recommendation to provide education for staff in ethics issues and moral distress was limited in addressing the origin of the problem.

Moral Distress and Critical Care

Sundin-Huard and Fahy (1999) examined the relationship of moral distress, advocacy, and burnout within the context of critical care nursing. Using an interpretive interactionist methodology ten critical care nurses from Australia were interviewed in-depth. Audio taped interviews were analyzed and data transcribed for themes in order to theorize about the interaction of concepts. Validation of inquiry was reported to insure methodological correctness. Theorizing was drawn from all the respondents' narratives and revealed powerlessness, inadequacy of staffing and experience, and a need to avoid critique and shame (Sundin-Huard & Fahy, 1999). Nurses felt conflicted between legal and moral obligations and resorted to advocacy to get adequate medical treatment for their patients. The environment where the events occurred was significant for the pressure of lack of time, nursing silence, and technologic chaos that was reported. A sense of fear and power relations was also identified among staff member narratives (Sundin-Huard & Fahy, 1999). Nurses that selected advocacy for the patient felt unsuccessful in their attempts, which increased their feeling of frustration, hurt, and anger. Generalizability to other healthcare settings outside Australia and small sample size may limit the findings of the study.

Critical care nurses were also studied by Meltzer and Missak-Huckabay (2004) to ascertain relationships of nurses' perceptions of futile care and burnout. Futile care within the critical care environment can lead to emotional exhaustion. The descriptive survey study measured moral distress and burnout in a convenience sample of sixty critical care nurses with at least one year of experience in full-time work from two southern California hospitals. Demographic data including age, sex, marital status, and shift of work were

collected but not controlled for (Meltzer & Missak-Huckabay, 2004). The Moral Distress Scale (Corley, Elswick, Gorman & Clor, 2001) and Maslach Burnout Inventory (Maslach, 2003) were administered to sixty critical care staff nurses after signed informed consent was obtained. Instruments were then returned via postage paid envelope within 2 weeks. Data collection occurred over six months. Findings supported that moral distress and futile care were directly and significantly related (r= 0.317, p =.05) to emotional exhaustion. Findings also supported younger nurses were more susceptible to feelings of depersonalization (p = .08). Moral distress also increased with the degree of education (p .08). Findings included nurses who worked on the same unit without rotation to another unit experienced less personal accomplishment, and nurses who viewed religion as important also reported less emotional exhaustion overall (p = .05) (Meltzer & Missak-Huckabay, 2004). This study adds to the body of evidence demonstrating that critical care nurses who deal with complex technology and life sustaining interventions experience conflict, moral distress, and emotional exhaustion related to their practice environment.

Corley's work within critical care nursing has allowed for the quantification of moral distress related to clinical practice (Corley, Elswick, Gorman & Clor, 2001). The Moral Distress Scale (MDS) developed by Corley was based on Jameton's (1984) definition of moral distress. The MDS was derived from a theory based on role conflict, value theory, and autonomy. The instrument reported reliability assessed by Cronbach's alpha coefficients of 0.30-0.70 for all items. An initial 5-point Likert scale was used and expanded to 7 points to increase scale response variation. Validity was assessed thru domain identification, and content analysis. The test-retest reliability overall was 0.86.

Overall assessment of the instrument demonstrated initial support for the MDS as a measure of moral distress critical care nurses.

Additionally, Corley and Minick (2002) described strategies to help deal with moral distress. Items such as clarification of values and addressing knowledge deficits among nursing staff for the provision of an ethical work environment were suggested. Corley (2002) had theorized nursing as moral work in a subsequent literature review. Supplemental ethics education beyond the biomedical principles of beneficence, non-malfeasance, justice, and autonomy, the inclusion of nurses on hospital ethics committees, and promoting research on moral distress were supported as potential corrective solutions. Corley (2002) theorized that when the impact of moral distress was addressed, moral comfort would be obtained. Areas identified for additional research study were further instrument development, factors predicting moral distress, and interventions to address moral distress (Corley, 2002).

Moral distress in a medical intensive care unit (Elpren, Covert & Kleinpell, 2005) was measured using the Moral Distress Scale (Corley, Elswick, Gorman & Clor, 2001). An exploratory, descriptive, non-experimental study was completed with twenty-eight critical care staff at an academic medical center. The purpose of the study was to identify the level of moral distress within the unit; situations associated with moral distress, and associated demographic data with the reported level of distress. Reliability and validity of the MDS were not reported for this study. A strength of the study was the inclusion of an open-ended question relating experiences of moral distress. Comments of situations are summarized and support prior work done on moral distress relating to quality of life and

quality of dying, powerlessness, stress, and intention to leave the position, or the profession (Elpren, Covert & Kleinpell, 2005).

The American Association of Critical Care Nurses (AACN, 2004) has recognized and adopted a position statement based on the definition of moral distress put forth by Jameton (1984) and Corley's (2001; 2002) work. The position statement recognizes the detrimental effects of moral distress on the emotional and physical aspects of the professional critical care nurse. AACN (2004) recognized the workplace environment, employer, and employee responsibility in working to ameliorate moral distress to optimally meet the patient's needs. A call to scrutinize the work environment for potential sources of distress and corrective actions was supported as well (AACN, 2004).

Compassion Fatigue in Helping Professions

Compassion fatigue was "defined as the natural or consequent behaviors and emotions resulting from knowing about a traumatizing event experienced by a significant other" (Figley, 1995) p 7.

The personal cost to the nurse as an individual was important to consider within the context of the changing healthcare environment. Compassion has been defined as, "a feeling of deep sympathy or sorrow for another who was suffering or stricken by misfortune accompanied by a strong desire to alleviate the pain or its cause" (Figley, 2002 p 2.). Compassion incorporates the individual's ability to empathize, to understand and help another individual (Figley, 2002). In maintaining nursing's social contract, a trust relationship develops between the patient and the nurse. A lasting impression, sight, or retelling of a distressing situation, or traumatic procedure may generate compassion fatigue for the nurse. Different from the concept of burnout, compassion fatigue occurs in

used (Boscarino, Figley & Adams, 2004). Longitudinal studies with other populations are needed to support generalizability.

Compassion Fatigue and Nursing: What is Known and Unknown

Maytum, Bielski-Heiman, and Garwick (2004) conducted a descriptive qualitative study of compassion fatigue and burnout in a sample of twenty pediatric nurses. The purpose of the study was to identify the coping strategies the nurses used to manage compassion fatigue symptoms and triggers of compassion fatigue in the care of chronically ill children. The study framework supported addressing compassion fatigue research because of the anticipated shortage of nursing personnel within the next decade. A purposive sample was recruited to ensure an extensive background in working with chronically ill children. Eleven open-ended questions were asked after a patient-family scenario was given to the group to read prior to the interview. The purpose of the scenario was to identify a consistent thinking point for all participants. Validity was addressed through content analysis and expert review (Maytum, et al., 2004). Two of the principal investigators used their experience of working together to identify key informants identified compassion fatigue. Compassion fatigue was verified by asking questions using the term compassion fatigue. Repetitive themes emerged from the data. Maytum, et al. (2004) found work-related coping was linked to taking time off in the short-term and developing supportive relationships in the long-term. Personal coping strategies centered on engaging in self-care activities in the sort-term and developing a personal philosophy of nursing in the long-term. Children experiencing painful procedures were a primary trigger in the development of compassion fatigue in the

sample (Maytum, et al.). A gap in the literature exists related to the study of other nursing populations and compassion fatigue.

Conceptual Framework

Agamben's work as a contemporary philosopher was drawn from the fields of philosophy, anthropology, and metaphysics (Norris, 2003). The use of Agamben's work as a foundation allows for the analysis of power relations within ethical decision-making and societal choices (Norris, 2000).

In his work, Agamben (1998) explores a facet of ancient Roman law, designation as homo sacer, to demonstrate the effect of the dominant cultural thought when individuals are marginalized by the current power structure. This power dictated that a Roman citizen convicted of a type of crime was banned from society thus relinquishing his rights as a citizen, relegating him to the status of homo sacer or "sacred man" (Agamben, 1998, p 71). "Sacred man" existed in a state of exception. Considered as a state of exception, the individual had no rights or political voice and therefore was subject to the power afforded the political being (Agamben, 1998 p 73). A person designated as homo sacer could be killed by anyone and it was not considered a homicide, but could not be offered as a religious sacrifice (Agamben, 1998). Agamben contrasts the concept of zoe or "bare life" with the concept of bios, or political life. Assignment to either Bios, the preferred and powerful state, or zoe, viewed as the other, is at the whim of those in power (Agamben, 1998, p 120). The sovereign –understood as the holder of political authority- has the power to designate a state of exception and delineate where the boundaries of zoe/bios are at any given time. In essence, the

sovereign can make decisions for or about zoe through the actions or decisions of bios (Agamben, 1998).

Agamben's (1998) work elucidates the contrast between Zoë or "bare life" in opposition to bios or individual political life. "Bare life" is conceived as simply living, "common to all humans, animals, and gods" (Agamben, 1998, p 1). The zoe being or bare life was rendered powerless and voiceless through the actions of the powerful other, bios, imposed upon the bare life (Agamben, 1998, p 138). Thus, Agamben posits that this bio-political oppression of zoe continues to exist, much as it did for the homo sacer in ancient Roman law.

In Agamben's schema, the bios or "individual life" represents a fully functional and political being able to maintain voice and make claim to the autonomy granted a thinking responding individual (Agamben, 1998). The bios as an individual and political person was afforded power, prestige, and deemed "worthy." Ultimately, the sovereign- or political authority- determines who constitutes zoe and has the power of decision-making over such "bare life" (Agamben, 1998, p139).

Agamben (1998) considers the powerless, voiceless state, an unspoken secret held by bios that enables the individual considered bare life to endure a forced survival detached from the preferred bios status. Thus, through political agency, persons of bios status are able to determine a variety of outcomes for persons of zoe status. Such outcomes range from the allowance of the development of the zoe individual to their ultimate ruin and neglect (Wynn, 2002). Ultimately, Agamben (2002) argues that the void between the socially constructed states of Zoe and bios needs to be addressed and reconciled if all of human life is to be valued.

Wynn (2002) places particular emphasis on the advancement in Western medical technology that occurred during the 1960's, a period of technologic advancement, change, and growth. This trend of advancement in medical technology and the ability to extend life or postpone death have become more prominent and continue to be the dominant focus in healthcare today. Wynn (2002) uses as an exemplar of this thinking the case of a very sick premature neonate clinging to technology for every breath of life in the neonatal intensive care unit. A similar circumstance may occur currently in adult critical care units. The exemplar of older adult patients clinging to technology in desperation awaiting a cure from incurable debilitating diseases is common in today's critical care units.

From a health care perspective, the concepts Agamben describes of zoe and bios are hauntingly familiar given the projected aging of Americans (those aged 65 or greater) is estimated to steadily increase. The promotion of a state of exception in critically ill patients is possible- and probable- given the technology available in the intensive care environment today. The status afforded the older individual dependent on ventilator assistance for breathing may move from bios to zoe as his or her mental status deteriorates from the administration of sedatives, paralytics, and analgesics medications. Congruently, the person in a persistent vegetative state from a stroke also may be at risk of assignment to zoe or bare life status. Such non-speaking persons without political agency are at risk to be viewed as less valuable than persons who hold bios status, as the current zoe/bios dichotomy is understood (Agamben, 1999).

Agamben (1999, p 17) also describes the concept of "witness." Using the original Latin word for witness Agamben (1999) focuses on superstes, or a survivor, an individual

Compassion satisfaction and compassion fatigue were studied in a group of seventy-one critical incident stress management workers (N = 71) attending an international conference (Wee & Meyers, 2003). The sample consisted of primarily social workers (22.4%), firefighters (16.9%), nurses (14%) and others 17% (chaplains, counselors & psychologists). Overall findings for the group indicated compassion satisfaction potential was rated as good within the sample of experienced professionals (M = 97.54), compassion fatigue risk score is rated as low (M = 29.22), and mean burnout was reported as an extremely low was (M = 26.89) for development. Closer analysis of the data supports that 40.9% of respondents were at risk for moderate to extremely high risk of compassion fatigue (Wee & Meyers, 2003). A surprising finding was that increased compassion satisfaction was associated with age. Wee and Meyers (2003) theorize this was possible because of the maturity that accompanies the aging process and an expanded worldview. The extent of compassion fatigue documented provides a framework for further study.

Compassion fatigue following the World Trade Center (WTC) 9-11 terrorist attacks was studied in a random sample of 236 social workers (Boscarino, Figley & Adams, 2004). Fifty percent of the participants had direct activity with recovery involvement from the incident. Eighty percent of the participants were white, married women with 10 or more years of counseling work experience. Thirty four percent reported they had dealt with traumatic events a large percentage of time. Correlations indicated married individuals and those with many years in the counseling field reported less job burnout. A limitation of the study was the one time measurement of compassion fatigue and the lack of positive statements regarding compassion satisfaction on the scale

a short period, and may occur at any time after the secondary exposure (Figley, 1995). Burnout emerges in an insidious manner and becomes progressively worse over time (Maslach, 2003). Additionally, feelings of powerlessness or a sense of inability to attain work goals, and frustration were frequently reported (Figley, 1995; Maslach, 2003). Compassion fatigue was experienced through the indirect relating of an event as a secondary exposure and can occur without warning with a rapid onset of symptoms. Figley (1995) reported a more rapid recovery rate with compassion fatigue for caregivers. The empathic response to another's experience was a prominent linking concept within compassion fatigue (Figley, 2002). Other authors have also linked the concepts of burnout and compassion fatigue (Acker, 1993; Haylock, 2001; Keidel, 2002) however; Stamm (2005) and Figley (2002) indicate that while some aspects overlap there are clear conceptual differences supported in measurement of each concept. Compassion fatigue has also been referred to as secondary traumatic stress (STS) or vicarious victimization (Figley, 1995). Features of STS include an emotional attachment or identification with the victim whereby the helper absorbs or takes on the experience of the victim (Figley, 2002). Nurses in the critical care environment are in an ideal role to develop compassion fatigue based on their immediate exposure to the patient after accident, injury, traumatic illness, distress, or extensive surgical procedures, and repeated work shifts. The preceding clinical issues translate into the invisible and unspoken cost associated with caring for patients in high acuity areas.

Compassion fatigue has been studied in various professions associated with the witnessing or the retelling of traumatic events. As an example, compassion fatigue has been studied in therapists dealing with crisis intervention work (Wee & Myers, 2003).

who had the ability to speak to the experience of the event. The survivors of Nazi death camps during the period of National Socialism in Germany represent a voice that accounted for, or bore witness to the events that occurred at the time (Benedict & Georges, 2006). Through Agamben's lens, the witness and testimony are seen as one (Agamben, 1999). A witness is able to give testimony to the events as they occurred within a given time or space (Agamben, 1999). A nurse at the bedside of a critically ill patient also constitutes a witness in this sense, and as such bears testimony. The role of the critical care nurse may become that of a witness at the bedside caring for individuals for whom life may become a prolongation of death or the dying process. Critical nurses are situated in a space or void with which families are unfamiliar. Families in this void often are called upon to be advocates of their loved ones in the absence of knowledge of the progression of chronic illness, or even the wishes and desires of their loved ones. The critical care environment thus provides a stage for the role of the *nurse as witness* to become reality.

Nurses historically through their social contract with society have been charged with the responsibility of advocating or giving a voice to or for the patient and family who often times are unable to do so for themselves. The proximity of the nurse (Peter & Liaschenko, 2004) to the patient in critical care and the presence of the nurse as a witness may generate moral distress for the nurse. Being with or acting on behalf of the patient, the nurse may experience moral dissonance enhanced by ethical dilemmas. When left unresolved, such dissonances may lead to moral distress. The very role itself of critical care nurse as witness at the bedside may give rise to moral distress. Ultimately, the moral

distress burden of the critical care nurse may create or further promote a detachment or withdrawal from the critical role of witness to events.

The importance of testimony is underscored by the nurse's ability to be present and attentive to the bios of the individual, thus avoiding association of the patient with zoe. If compassion fatigue with attendant feelings of avoidance and diminished interest are present (Figley, 1995), the attribution of patients to zoe status by nurses becomes much more possible. In this context, this study seeks to explore the following concerns. From an ethical standpoint, what happens when the attention of the nurse waivers due to moral distress or compassion fatigue? Will the outcome for the patient be affected to the extent that the patient must be protected from the witness?

Theoretical Summary

Informed by the philosophical ideas developed by Agamben, this study has as an underlying assumption the assertion that critical care nurses are both the possible enforcers- and preventers- of the assignment of zoe status. Using the salient outcome of medication error perception, this study seeks to examine moral distress and compassion fatigue in critical care nurses, thus rendering more salient the ethical context in which critical care nurses practice.

Summary

Patient outcomes have become a customary method of measuring nursing effectiveness within the context of the acute hospital setting and particularly critical care. The linking of nursing care activities and interventions assists in moving nursing science forward. Patient safety has become a priority in healthcare in part because of numerous medical errors resulting in patient harm. Patient safety is viewed as a current healthcare

priority from a regulatory standpoint, a quality improvement initiative and the correct action morally. Reduction of medication error is a principal component of patient safety and a priority for healthcare. Currently, there is limited knowledge concerning the nurse's perception and understanding of the medication error process, although nurses are the principle individuals involved in the medication administration process. As such, nurses have the ability to assist in the understanding of this patient safety issue. A foundational step in increasing understanding is to recognize and comprehend the medication error reporting process and the nurses' perception regarding medication errors and the reporting process.

Identified gaps in the literature exist regarding the study of compassion fatigue in critical care nurses. There are no studies assessing the relationship of moral distress, and perceived medication errors or reporting. Additionally, there are no studies examining compassion fatigue and moral distress in critical care nurses related to the patient safety outcome of medication administration error. Lastly, there are no studies among nurses, moral distress, and compassion fatigue in the critical care area related to perceived medication administration error.

Chapter 3

Methods

The purpose of this mixed method descriptive correlational study was to examine the relationship between moral distress, compassion fatigue, and the patient safety outcome of critical care nurses' perception of medication error, and to obtain a deepened understanding of the nurses' experience of medication error, moral distress and compassion fatigue. This chapter includes a description of the design, sample and sampling, instrumentation, data collection and analytic procedures. The protection of human subjects is also presented.

Specific Aims:

Aim 1

Examine the incidence of moral distress, compassion fatigue, and perceived medication error among critical care nurses

Aim 2

Describe the relationship of critical care nurses (moral distress, compassion fatigue and demographics) on nurses' perception of medication error.

Aim 3

Develop a broader understanding of how critical care nurses experience the phenomena of perceived medication administration error related to moral distress and compassion fatigue.

Design

A correlational embedded mixed method design was used for this study. An embedded design is one of the four types of mixed method designs where specifically one data set provides a supportive, secondary role in a study based primarily on the other data type (Creswell & Plano-Clark, 2007). This design is based on the premise that a single data set is not sufficient, that different questions need to be answered, and that each type of question requires different types of data (Creswell & Plano-Clark). This design is used when investigators need to include qualitative or quantitative data to answer a research question within a largely quantitative or qualitative study (Creswell & Plano-Clark). The correlation model is a variant of the embedded design where qualitative data are embedded in a quantitative design. For the purposes of this study a qualitative interview/focus group was embedded to broaden the understanding of how critical care nurses experience the phenomena of perceived medication administration error related to moral distress and compassion fatigue.

A benefit of this research design was the ease in use of brief self-report instruments for the quantitative portion of the study. To overcome the potential limitation of a solely quantitative method that may not adequately describe the detailed account of each participant's experience of moral distress or compassion fatigue thereby reducing the depth of each concept and depth of relationship among outcome variables a qualitative method of a focus group interview using open-ended questions was conducted with a select number (six to ten) of critical care nurses to obtain data related to the participant's experience of moral distress, compassion fatigue, and perception of medication administration error. One audio taped focus group interview was conducted

to increase our understanding of the nurse's experience of medication errors, moral distress, and compassion fatigue.

Sample

A purposive sample of certified critical care registered nurses (CCRN's) were asked to participate in the study. A national listing of 1000 critical care nurses was obtained from the National Association of Critical Care Nurses (AACN) through their list rental process. Inclusion criteria for the study was a) adult critical care nurses that are certified critical care registered nurses (CCRN's) and b) involved in patient care delivery within the previous 12 months. Exclusion criteria was current involvement in personal counseling due to the possibility of psychologic trauma for the participant. CCRN's were asked to participate because they are more likely to have been recently involved with patient care as a condition of maintaining their CCRN status. Critical care specialty was defined as hands-on care of patients requiring an intensive care setting and monitoring for acute conditions with 2:1 or 1:1 nursing care.

Sample Size

A power analysis was performed to estimate the sample size required for moderate effect size for this study. Level of significance was set at $p = 0.05$ and a power of .80. Sample size was determined for a moderate effect size ($r^2 = 0.13$, estimated) and power of 0.80 to avoid a Type II error (Munro, 2005). Sample size utilizing this method demonstrates a need for 157 participants to determine statistical significance and reduce the chance for a Type II error.

Recruitment

A national list of critical care registered nurses (CCRN's) with current membership in American Association of Critical Care Nurses (AACN) was obtained through the list rental service after the proposal was reviewed and the AACN grants permission for list rental. The list was obtained on preprinted address labels, which were applied to the survey packet. Survey packets contained cover letter of introduction and explanation of the project, the three measures, and demographic questions (Appendix A) and a stamped return envelope. These packets were mailed once to each of the individuals whose names were provided on the preprinted labels. The cover letter introduced the purpose of the study and extended an invitation to each nurse to participate voluntarily. Due to the potentially sensitive nature of the material, participants were encouraged to fill out the surveys at home. If troubling thoughts or memories occur, the participants were encouraged to withdraw from the study. The return of the completed survey packet indicated informed consent. Participants were encouraged to return their anonymous survey packet within two weeks in an envelope preaddressed to the primary investigator. Average data collection time for the surveys and demographic form was less than 1 hour.

For the qualitative phase, a snowball method was used to acquire a small sample of critical care nurses with current staff work experience identified through a Southern California network of Clinical Nurse Specialists for participation in a one-time focus group interview. Eligible interviewees were limited to adult critical care experience and current bedside clinical practice.

The nurses identified for the focus group interview were invited to attend a group meeting to discuss the concepts of medication administration errors, moral distress and compassion fatigue and how those phenomena influence or interact with the nurse caring for critically ill patients. Focus group interview participants met in a specified private location away from the work environment to facilitate open discussion among the group members. The primary investigator facilitated the interview/focus group, upon obtaining informed consent from the participants the interviewer asked questions from a formulated list of open-ended questions (Appendix B), took notes as well as audio taped the interview. Participants were identified through a numerical coded assignment. Codes were kept in a log book and stored in a locked location known only to the principal investigator. A small thank you gift ($10.00 complimentary coffee card) was given to each interviewee for their participation in the interview. The interview was transcribed word for word, and was kept in a locked a secured location.

Data Collection

A survey was mailed to a national sample of certified critical care registered nurses with current membership in AACN. Participants self-administered the survey which contains the Moral Distress Scale (MDS), the Professional Quality of Life Scale (ProQOL), the Medication Administration Error Survey (MAE), and a demographic data collection form. After completing the survey, participants were encouraged to return the packet in the self-addressed stamped envelop to the principal investigator through the postal service within two weeks.

A small group of CCNs were invited to participate in one focus group interview during the survey data collection period. Participation in the focus group was voluntary

and a consent form was signed. Participating in the interview was not contingent on survey completion. All interviews were audio-taped and de-identified to maintain anonymity. Tapes were then be transcribed verbatim and reviewed for emergence of common language and themes.

Measurement

Data collection utilized three separate instruments, and a demographic form; the MDS, ProQOL, and the MAE instrument.

Demographic Data

A demographic questionnaire (Appendix E) was used to gather information on participant age, gender, religious affiliation, marital status, type of unit or type of patient cared for, number of years as a nurse, number of years of employment in this particular unit, work status (full-time, part-time, per diem), length of shift worked, nursing as a second career choice, and intent to leave their current position due to moral distress, was used. This information provided a profile of the study participants to compare and contrast with previous studies (see Appendix A).

Moral Distress Scale (MDS)

Moral distress was defined as," individual knowing the correct course of action to take but because of real or perceived institutional constraint or barrier it is impossible to carry out the correct course of action" (Jameton, 1984 p. 6) and was measured by the Moral Distress Scale (MDS) (Corley, 2001).

The MDS is a self-administered thirty-eight item, 7-response likert scale instrument developed by Corley (2001) to measure the moral distress of critical care staff in response to caring for acutely ill patients (Appendix F). Scale content validity was

established by domain identification and content expertise. Reliability was established by test-retest with thirty five critical care staff and reported as 0.86 ($p = < 0.01$). Originally developed as a 5-response likert scale, to increase score variability the scale was increased to a 7 point likert scale. Contrasting group approach for reliability was tested with occupational health nurses. The occupational health nurses did not report the situations reflected on the MDS but identified other unreported distressing practice issues (Corley, 2001). Item analysis was completed using an orthogonal rotation to identify underlying dimensions of the MDS (Corley, 2001). All items were moderately correlated to other items on the scale ($r = 0.31$-0.70). In addition, each was highly correlated with at least one other variable on the scale. All items were retained. Factor analysis done for the intensity scale demonstrated three prominent factors on the intensity scale. They were individual responsibility ($\alpha = 0.98$), not in the patient's best interest ($\alpha = 0.82$), and deception ($\alpha = 0.84$). No demographic variables were related to level of moral distress. A higher score on the MDS indicates a higher level of moral distress. Mean item scores ranged from 3.9- 5.5 (highest mean score 5.47) indicating a moderately high level of moral distress (Corley, 2001). Initial results from this study supported the reliability and validity of the MDS for critical care staff. Further reliability testing for the MDS intensity scale was $\alpha = 0.98$ and $\alpha = 0.90$ for the frequency scale (Corley, et al, 2005). Originally developed as a 38-item instrument, the MDS was revised to 19 items and likert scale ranking was reduced from 0-7 to 0-4 in the current version (Hamric & Blackhall, 2007). Internal consistency reliability for the shortened version was $\alpha = 0.83$. Scoring for the MDS was altered to develop an overall composite score of moral distress for the shortened version. For the purposes of this research the 38 item instrument was used.

Professional Quality of Life Scale (ProQOL)

Compassion fatigue was defined as work related secondary exposure to extremely stressful events, which occur rapidly and are associated with a particular event (Figley, 1995). Also known as secondary trauma it is the result of being exposed to other's traumatic events (Figley, 1995).

The Professional Quality of Life Scale (ProQOL) (Stamm, 2005) is the current version of the Compassion Fatigue Self Test first developed by Figley (1995) (Appendix G). ProQOL, a self-administered measure, was developed to specifically address psychometric issues present in the original instrument. The third version of the ProQOL specifically separates the concepts of burnout and secondary/vicarious trauma (Stamm, 2005). Each subscale of the ProQOL has 10 items. Scales address compassion satisfaction, burnout, and compassion fatigue/secondary trauma. Each scale was separate and a composite score was not obtainable due to the complex interrelationships of the concepts. A higher score on the compassion satisfaction scale was associated with more job satisfaction. A high score on the burnout scale represents a higher potential for burnout risk. Compassion fatigue was a greater risk with a higher score on the subscale (Stamm, 2005). Alpha reliabilities for the scale components are, compassion satisfaction alpha = .89, burnout alpha = .71, and compassion fatigue alpha = .80. Cut point scores are not recommended and Stamm (2005) suggests using the measure in a continuous form. The ProQOL has been studied widely in emergency response personnel, disaster relief workers, psychologists, therapists, and some nursing specialties (Stamm, 2005). To date the instrument has not been used in the critical care nursing population.

Medication Administration Error Survey (MAE)

The MAE was developed as a measure to address the central role nurses have in medication administration and the importance of their perceptions of medication error reporting (Appendix H). The measure addresses three general content areas, why medication errors occur, reasons why medication errors are not reported and an estimated percentage of actual medication errors reported (Wakefield, Homan & Wakefield, 2005).

Several concepts have been suggested as rationale for why medication errors occur. Broadly, they are categorized as individual characteristics, policy and procedure related issues, communication and systems issues. Individual issues are related to knowing the patient diagnosis, insufficient knowledge of the patient and errors in operation of equipment or administration route. Policy and procedure issues include both deviation from the policy or the absence of the policy and lack of standard protocols for administration of high-risk medications such as insulin. Failure to communicate may include transcription errors or incorrect interpretation of the order or failure to document appropriately. System issues refer to workload, type of care delivery system, staffing mix, floating to another area, unclear labeling, and look alike medications among others.

An experienced quality improvement clinician and a health services researcher developed the MAE. Items on the survey were constructed to reflect the most common reasons why medication errors were not reported. Expert nurses reviewed the items and the instrument was pilot tested at one hospital in Iowa. Minor revisions were made and the instrument was used in a large multi-hospital sample in 1994. Based on updated literature and feedback the 10 additional items were added to the *Reasons Errors Occur* portion of the instrument in 1996 (Wakefield, Homan & Wakefield, 2005). Test- retest

using Cronbach's alpha reliability for the measure ranged from 0.52- 0.78 for the various subscale scores. Face validity has been assessed and construct validity has been tested with confirmatory factor analysis. Criterion related validity was established by comparing other measures of the same construct and through a pilot study.

The pencil and paper survey takes less than 10 minutes to complete and addresses three content areas of nurse perception of medication administration error. The areas are reasons why medication errors occur, reasons why medication errors are not reported, and estimated percentage of errors actually reported (Wakefield, Homan, & Wakefield, 2005). The first two sections ask the participant to indicate a level of agreement with the statement based on a six point likert scale (1= strongly disagree to 6= strongly agree). In the third section participants are asked to estimate the percent of errors reported on their respective units for both intravenous (IV) and non-intravenous (non-IV) related errors on a ten point scale. Each measurement point on the scale indicates a percentage of medication administration error reporting on individual points - participants also estimate a global estimate of IV and non-IV errors for their individual units as well.

Scoring the survey entails calculating means and standard deviations for the first two sections. Subscale scores are calculated by adding the value for each item and dividing by the number of items in the subscale. Scoring the third section was done through calculating the frequency for each percent increment (Wakefield, Homan & Wakefield, 2005).

In the four large surveys conducted with the MAE it was important to note some hospitals chose to have each nurse complete the survey while other hospitals selected

particular units to administer the survey. Once completed the data was sent to the University of Iowa's Institute for Quality Healthcare (IQH) for data entry and analysis.

Scale development for the MAE occurred with principal components exploratory-factor analysis with orthogonal rotation to determine if individual items could be combined into subscales. An Eigen value criterion of 1.0 was used to establish subscale factors. Individual items required a factor loading score, α=.40, or more to be included as a factor. Items that loaded on the same factor were formed into subscales. Subscale values were defined as the mean of a component value (Wakefield, Homan & Wakefield, 2005).

During the initial survey, items were reviewed and assessed for face validity. After the formation of subscales using exploratory factor analysis, they were again reviewed for face validity. After the subscales were developed confirmatory factor, analysis was used to establish construct validity. The five subscales that emerged were, medication packaging, nurse staffing, pharmacy processes, physician communication, and transcription related. Concurrent validity was assessed by comparing the measure to other measures of the same construct (Wakefield, Homan & Wakefield, 2005).

Reliability was assessed through Cronbach's Coefficient Alpha. Alpha reliabilities were found to be within an acceptable range (between α = .646 - α .710). Test-retest reliability was assessed for the subscales using a sample of registered nurses enrolled in a graduate degree-nursing program. Students were given the survey once and again three weeks later. Pearson's r correlations ranged from 0.53 – 0.78 for the subscales (Wakefield, Homan & Wakefield, 2005).

The measure was recommended for use in quality improvement efforts and to quantify the medication administration error process (Wakefield, Homan & Wakefield, 2005). Mean scores may be determined for individual items or subscales. Comparison between the manager's score and staff scores can be made, comparisons between pre and post intervention scores can be calculated can be determined as well. A limitation for the measure was that it has only been used in samples of Mid-western acute care hospitals and was aimed at individuals with the primary responsibility of medication administration. It was meant to measure only nurses' perception of medication errors and not actual medication errors themselves.

Statistical Analysis

This correlational, non-experimental mixed method study used descriptive and multivariate statistics to answer the following research questions. All data was analyzed by using the software package *Statistical Package for Social Sciences*, *version 15* (SPSS, 2008).

Question 1: What is the level of moral distress, compassion fatigue, and perceived medication error among critical care nurses?

Question 2: What is the relationship between moral distress, compassion fatigue, and perceived medication error among critical care nurses?

Question 3: What is the effect of the predictor variables of moral distress, compassion fatigue on perceived medication error?

Descriptive statistics (means, standard deviations, percentages) were computed to summarize the demographic variables of age, gender, religious affiliation, marital status, type of unit, number of years of employment in current unit, work status, and nursing as a second career choice and the study variables of moral distress, compassion fatigue, and perception of medication error. To examine the reliability of the measures Cronbach's alpha coefficients were generated and compared to the original coefficients as described in the literature.

To examine the relationships among the variables, first a correlation matrix was constructed to identify the potential for multicollinearity, which can occur when there are moderate to high correlations among predictor variables. Predictor variables scrutinized for moderate to high correlations can possibly be deleted and one variable will be reported, or variables may be combined to represent one measure of a construct to delete repetition (Mertler & Vannatta, 2005). In the data reported here, no multicollinearity was found. Relationships between the independent and dependent variables are reported using Pearson's *r* correlation.

A correlation is a single number that describes the degree of relationship between two variables (Munro, 2005). In probability theory and statistics correlation, it is also known as the correlation coefficient, a numeric measure of the strength of linear relationship between two random variables (Munro, 2005). Pearson's *r* was calculated as a measure of the linear relationship between two quantitatively measured variables. The value range for *r* is -1 to +1. When the correlation result is 0, there is no relationship between the variables, however if the correlation is positive, the two variables are related. Negative *r* values indicate an inverse relationship. The strength of relationship is

measured by r^2 the coefficient of determination. This method of statistical analysis was selected because the researcher does not wish to imply causation but is interested in the relationship of contributing variables to the independent variables. Explanation of relationships among interrelated predictor and outcome variables have been reported. The established p value was set at $p = 0.05$.

Regression techniques make use of the correlation between variables and permit predictions to be made from some known evidence to future events (Munro, 2005). Simultaneous multivariable regressions were computed for the purposes of this study. As there was no random assignment among the participants, potentially confounding variables were controlled and include: gender, race and ethnicity, marital status, educational level, age, religion, approximate number of years as a nurse, tenure on unit, work status, and considering resigning due to moral distress.

Qualitative Data Analysis

A concurrent nested strategy was used to examine multiple levels of data. Analysis and interpretation of the data involved combining qualitative data with qualitative data to gain a deeper understanding of the phenomena of interest (Creswell & Plano-Clark, 2007) Data collected with open ended questions were transcribed and analyzed for theme identification. Common themes were extracted and coded to obtain a more rich and full understanding of how critical care nurses experience the phenomena in question and how does the phenomena exist within the context of critical care work (Creswell, 1998).

Protection of Human Subjects

Approval to conduct the study was obtained from the USD Institutional Review board (Appendix C) for the Protection of Human Subjects and approved by AACN to obtain their membership list of CCRN's.

Written informed consent was to be obtained however; returned survey packets will imply informed consent. Survey packets were coded with a number and no other identifying information for tracking purposes. As survey packets are returned coded instruments were filed in a locked file. All data collected was kept confidential. No identifying data was collected on the questionnaires and demographic data was coded and the code log was kept in a secure locked area known to the principal investigator. Participants were informed at the onset they may withdraw from the study without repercussion at any time. No minor subjects were asked to participate. Those undergoing current personal counseling were encouraged to not participate due to the risk of recalling disturbing or distressing situations.

Interview participants were informed of the voluntary nature of the interview and receive assurance that all data was kept confidential. Additionally, participants signed an informed consent form (Appendix D) indicating their consent to the interview and for audio taping of the content.

Risks and Benefits

Participation in this research project may involve risks or discomforts. Potential risks and benefits were outlined in the cover letter. Completion of the self-administered instruments may cause the participant to recall a troubling memory or thought. To minimize the risk participants were asked to focus on their current work setting within the

last 30 days. All information was kept confidential and data was coded to de-identify. Surveys were returned to the principal investigator in a sealed envelope by postal mail. Interviewees undergoing personal counseling were asked to withdraw from the study due to the possibility of recalling a past troubling work circumstance. Interviewees were also encouraged to consider their current work environment in relation to the phenomena of interest.

One potential risk to participants could have been the recollection of disturbing or distressing thoughts or memories. To offset this potential risk all participants were encouraged to discontinue study participation.

There may be no direct benefit from study participation. However, a potential study benefit for nurses may be an increased self-awareness of moral distress and/or compassion fatigue and early treatment or intervention for the participant. Increased awareness of moral distress and compassion fatigue may encourage staff to develop or seek support resources in their professional practice. An indirect benefit from this potential awareness may be derived by future patients of the participating staff through improved patient outcomes. Nurses participating in the study may also benefit from increased awareness of factors relating to moral distress, quality of life or perception of medication error.

Chapter 4

Results

The purpose of this mixed method descriptive correlational study was to examine the relationship between moral distress, compassion fatigue, and the patient safety outcome of critical care nurses' perception of medication error, and to obtain a deepened understanding of the nurses' experience of medication error, moral distress and compassion fatigue. This study included two phases: one, a quantitative methodology to ascertain the relationship of moral distress and compassion fatigue to nurse's perceptions of medication errors in a national sample of critical care nurses. The second, a focus group interview to gain a deeper understanding of critical care nurses thoughts of moral distress and compassion fatigue related to medication error reduction strategies within their current work context. The methodology described in the previous chapter was used to analyze the data collected in the study. In this chapter the specific findings for each aim are presented.

Quantitative data collection occurred from September 2007 through November 2007. Of the 1000 mailed surveys, 205 were returned and 202 had completed surveys for analysis. Three surveys were returned with blank surveys one respondent provided the rational for non-completion: no longer working as a staff nurse. Of the 202 usable surveys three respondents did not complete gender information, six did not complete religion preference, other missing data included marital status (4) , work status (2),

nursing as alternate career choice (7), and resigning due to moral distress (5). No other data was missing.

Participant Profile

The majority of the participants were female (91.7%), with a mean age of 47 (*SD* = 7.91) years. The mean number of years worked as a nurse was reported as 23 (*SD* = 8.48); mean number of years worked on the respective unit was 13.6 years (*SD* = 8.45) and the mean number of hours worked per week was reported as 37 (*SD* = 10.7). Religious preferences indicated 45.2% (*n* = 90) Catholic, 33.7% (*n* = 67) Protestant, Jewish 1% (*n* = 2), and other 20.1% (*n* = 40) Christian (*n* =13) six percent. Over 73% (*n* = 148) of respondents were married with 14.4% (*n* = 29) never married and 10.4% (*n* = 21) divorced. The majority of participants worked full time (73%, *n* = 149) or part time (16.7% *n* = 34). Sixty-nine percent (69.9% *n* = 138) indicated nursing was their first career choice while 25% (*n* = 52) indicated nursing was a second career choice. Interestingly, nineteen participants (9.5%) indicated they were considering resigning from their current position based on moral distress. Type of unit worked was varied with the description medical, mixed, general, intensive care or adult numbering 104 participants, coronary care was reported as 40 participants and surgical intensive care (cardiac and trauma) was 35 participants. Most frequent type of patient cared for was varied with the majority indicating cardiac, medical-surgical, or critical (See Table 1).

Seventy percent of respondents indicated nursing was their first career choice, while twenty five percent indicated nursing was a second career choice, and four percent indicated nursing was a third career choice. When answering the question about resigning from a current position based on moral distress 90.5% responded no while, 9.5%

indicated yes they were considering resigning from their current position (See Table 1).

Table 1. Respondent Profile.

Characteristics	N	%	M (SD)	Range
Gender	202			
Male		6.9		
Female		93.1		
Religion	199			
Catholic		45.2		
Protestant		33.7		
Jewish		1.0		
Other		20.1		
Marital Status	201			
Never Married		14.4		
Married		73.6		
Separated		0.5		
Divorced		10.4		
Widowed		1.0		
Respondent's Work Status	203			
Full Time		73.4		
Part Time		16.7		
Full Year		0.5		
Per Diem		3.9		
Full Time Full Year		2.0		
Per Diem Part Time		1.0		
Part Time Full Year		2.5		
Nursing as a Career Choice	198			
First		69.7		
Second		26.3		
Third		4.0		
Considering Resignation	200			
No		90.5		
Yes		9.5		
Age	202		47.49 (7.91)	27.00-64.00
# of Years Worked as a Nurse	202		23.03 (8.49)	4.00-42.00
# of Years Worked in Unit	200		13.61 (8.45)	0.08-38.00
# of Hours Worked by Nurses in Unit	186		37.30 (10.76)	7.50-80.00

Descriptive Findings

***Aim #1**: Examine the incidence of moral distress, compassion fatigue and perceived medication error among critical care nurses.*

Moral Distress Scale (MDS)

Moral distress scores were calculated for 204 participants. Table 2 presents the descriptive statistical results based on the 38-item MDS. Both frequency and intensity were scored on a 0 - 7 scale. Overall, the moral distress score mean indicated a moderately high level of moral distress (M= 3.89, *SD* = 1.36), however the frequency of moral distress did not indicate moral distress occurred frequently (M = 1.61, SD = .701). The intensity of moral distress was high (M = 5.52, SD 1.69). Cronbach's alpha for scale score items was $\alpha = 0.97$. Frequency reliability was $\alpha = 0.91$, and intensity reliability was $\alpha = 0.95$. Previously reported reliabilities (Corley, et al., 2005) were comparable.

Professional Quality of Life (ProQOL)

The ProQOL (Stamm, 2005) was used to determine level of compassion satisfaction/ fatigue. Mean scores for the ProQOL subscales were compassion satisfaction 39.68 and burnout 21.27. Higher scores on these subscales indicate either greater satisfaction or burnout respectively. The compassion fatigue subscale score was 13.82. A score of greater than 17 indicated compassion fatigue was more likely. Participants in this study did not score highly in compassion fatigue. Reliabilities were completed on the instrument subscales of compassion satisfaction ($\alpha = .905$), burnout scale ($\alpha = .725$), and compassion fatigue/ secondary trauma scale ($\alpha = .809$) using Cronbach's Alpha. The

reported reliabilities were consistent with reliabilities obtained with the original measure of compassion satisfaction ($\alpha = .89$), burnout ($\alpha = .71$), and compassion fatigue ($\alpha = .80$).

Medication Administration Error

The Medication Administration Error (MAE) survey addresses three distinct areas related to medication administration: 1) reasons why medication errors occur on the respondent's unit of work, 2) reasons why medication administration errors are not reported on the unit of work, and 3) an estimated percentage of each type of error reported for the unit are the specific sections named. Within the first section, the subscales that emerged were physician communication, medication packaging, transcription related, pharmacy processes, and nurse staffing. The second section subscales are disagreement over error, reporting effort, fear, and administrative response. Reliabilities for the study were, Physician Communication $\alpha = 0.827$, Medication Packaging $\alpha = 0.815$, Transcription Related $\alpha = 0.930$, Pharmacy Processes $\alpha = 0.892$, Nurse Staffing $\alpha = 0.736$, Disagree with Definition $\alpha = 0.786$, Reporting Effort $\alpha = 0.755$, Fear $\alpha = 0.870$, all variables $\alpha = 0.782$. Compared with reliabilities from the original instrument (range $\alpha = 0.53 - 0.78$), the current reliabilities were higher.

The third section of the MAE was the participant's estimate of the percentage of medication errors reported on the unit for both intravenous and non-intravenous medications. Several aspects of medication administration were queried for both intravenous and non-intravenous administration. Tables 3 and 4 contain frequency and percentage data for 200 non-IV and IV medication error reported responses.

Approximately 57.5 % of nurses (n= 115) responding felt that forty percent or less of medication errors were actually reported.

Table 2. ***Measure Reliabilities***

Measure	*Mean (SD)*	*Alpha*
Moral Distress Scale		
MDS Scale score	3.89 (1.36)	.97
MDS Frequency Scale score	1.61 (.701)	.91
MDS Intensity Scale score	5.52 (1.69)	.95
Professional Quality of Life Scale		
Compassion Satisfaction	39.68 (6.84)	.91
Burnout	21.27 (5.79)	.73
Compassion Fatigue/Secondary Trauma	13. 82 (6.55)	.81
Medication Administration Error Survey		
Physician Communication	3.94 (1.05)	.83
Medication Packaging	4.00 (1.23)	.82
Transcription-related	2.79 (1.50)	.93
Pharmacy Processes	2.65 (1.17)	.89
Nurse Staffing	3.56 (1.18)	.74
Disagree with Definition	3.50 (1.14)	.79
Reporting Effort	3.77 (1.38)	.75
Fear	4.14 (1.18)	.87
Administrative Response	3.84 (1.25)	.78

Table 3. ***MAE Reported Error Frequencies Non-Intravenous***

Subscale Question	Frequency	Sample Percentage
Wrong Route of Administration ≤ 30%	116	58.9%
Wrong Time of Administration ≤ 20%	124	62.9%
Wrong Patient ≤ 50%	106	53%
Wrong Dose ≤ 40%	85	42.7%
Wrong Drug ≤ 30%	69	34.7%
Medication Omitted ≤ 60%	130	70%
Medication Given but not Ordered ≤ 30%	114	57%
Medication administered after Order to Discontinue ≤ 30%	115	57.2%
Given to Patient with Known Allergy ≤ 30%	140	50.3%

Table 4. ***MAE Reported Error Frequencies Intravenous Medications***

Subscale Question	Frequency	Sample Percentage
Wrong Method of Administration ≤ 30%	122	61.6%
Wrong Time of Administration ≤ 30%	122	61.3%
Wrong Patient ≤ 40%	101	50.5%
Wrong Dose ≤ 60%	122	51.3%
Wrong Drug ≤ 50%	69	53.7%
Medication Omitted ≤ 40%	104	52%
Medication Given but not Ordered ≤ 30%	119	59.2%
Medication administered after Order to Discontinue ≤ 30%	100	54.7%
Given to Patient with Known Allergy ≤ 30%	118	54.8%
Wrong Fluid < 40%	128	64.0%
Wrong Rate of Administration	101	50.5%
What percentage of all medication errors (IV and Non-IV) are reported on your unit ≤ 40%	115	57.5%

Aim# 2: *Describe the relationship of critical care nurses (moral distress, compassion fatigue and demographics) on nurses' perception of medication error.*

Correlations

A correlation matrix was computed to identify relationships between ProQOL and MAE scales, ProQOL and MDS scales and MDS and MAE scales.

ProQOL and MAE Scales

Statistically significant relationships were found for the ProQOL and MAE scales. Compassion Satisfaction Scale score and Administrative Response Scale score were negatively correlated $r = -.149, p = 0.43$. Burnout Scale score was positively correlated with Nurse Staffing Scale score $r = .289, p = .000$. Statistically significant positive correlations were also found between the Burnout Scale score and Disagree with Definition $r = .193, p = .008$, Fear Scale score $r = .201$, $p = .006$, and Administrative Response scale $r = .213, p =. 004$. Statistically significant positive correlations were found between the Compassion Fatigue/Secondary Trauma Scale score and Transcription Related Error score $r = .152, p =. 038$, Nurse Staffing Scale score $r = .145, p =. 049$, Disagree with Definition Scale score $r = .198, p =.007$, and Fear Scale score $r = .178, p = .015$.

Statically significant positive correlations were also found between the Burnout Scale score and the Moral Distress Frequency Scale score ($r = .284, p =.000$), and the Moral Distress Intensity Scale score ($r = .280, p = .000$). Compassion Fatigue Secondary Trauma Scale score with the Moral Distress Frequency ($r = .214, p= .002$), and Moral Distress Intensity ($r = .212, p = .003$). Moral Distress Scale score with Burnout Scale score ($r = .191, p = .007$) and Compassion Fatigue/Secondary Trauma Scale score ($r = .146, p$ .040).

No statistically significant correlations were found between the ProQOL scales and the MAE Subscale of Reasons Why Medications Are Not Reported on Your Unit.

Chapter V

Discussion

The purpose of this study was to examine self-reported level and relationships between nurses' perception of medication error, moral distress, and compassion fatigue within the context of critical care nursing. Informed by the philosophical framework of Agamben (Agamben, 1998), the context within which critical care nurses experience medication error, moral distress and compassion fatigue was elucidated. This chapter will present the meaning and significance of the study findings, the strengths and limitations of this study, and finally, the implications of the study and suggestions for future research.

Overview

Increased vigilance in patient safety has become a recent focus for healthcare. Many regulatory and reimbursement agencies have become patient safety oriented and held healthcare practitioners accountable. Nursing is central to patient care and key in the administration of medications. Nursing through the establishment of societal contract is accountable and responsible for medication administration. Therefore, it is relevant to explore potential influences on medication administration. The effect of medication safety strategies on the nurse in critical care has not been studied.

ProQOL and MDS

Statistically significant positive correlations were found between the Burnout scale score and the MDS scale score ($r = .19, p = .00$), the MDS intensity scale score ($r = .28, p = .00$), the MDS frequency scale score ($r = .28, p = .00$). The Compassion Fatigue/ Secondary Trauma scale score with MDS scale score ($r = .14, p = .04$), MDS frequency scale score ($r = .21, p = .00$) and MDS intensity scale score ($r = .21, p = .00$).

MDS and MAE Scales

The following statistically significant relationships were found between the MDS scale score and the nurse staffing scale score ($r = .26, p = .00$), the Disagree with definition scale score ($r = .23, p = .00$), the Reporting Effort scale ($r = .16, p = .02$), Fear scale score ($r = .25, p = .00$), and Administrative Response scale score ($r = .16, p = .02$).

The MDS Frequency scale score was significantly positively correlated with the Physician Communication Scale score ($r = .31, p = .00$), the Medication Packaging Scale score ($r = .17, p = .01$), the Transcription Related Scale score ($r = .26, p = .00$), Pharmacy Process Scale score ($r = .21, p = .00$), the Nurse Staffing Scale score ($r = .34, p = .00$), the Disagree with Definition Scale score ($r = .15, p = .03$), the Reporting Effort Scale score ($r = .23, p = .00$), the Fear Scale score ($r = .18, p = .01$) and the Administrative Response Scale score ($r = .37, p = .00$).

Statistically significant positive correlations were found between the MDS Intensity Scale score, the Physician Communication Scale score ($r = .22, p = .00$), the Transcription Related Scale score ($r = .19, p = .00$), the Pharmacy Process Scale score ($r = .14, p = .04$), the Nurse Staffing Scale score ($r = .34, p = .00$), Disagree with Definition

Scale score ($r = .25, p = .00$), the Reporting Effort Scale score ($r = .23, p = .00$), the Fear Scale score ($r = .28, p = .00$), and the Administrative Response Scale score ($r = .28$, $p = .00$).

Multiple Regressions

Simultaneous multiple regression was conducted to determine the accuracy of the IV moral distress and compassion fatigue in predicting medication scores while controlling for gender, age, work status, marital status, number of years worked in particular unit, number of years worked as a nurse, religion, work status, and considering resignation based on moral distress. Regression results indicate the overall model significantly predicted the Medication Administration Error Subscale of Nursing Staffing, $R^2 = .11$ $R^2_{adj} = .05$, $F(10, 164) = 2.03, p < .03$.(Table 5). This model accounts for 11 percent of the variance in Nursing Staffing. A summary of regression coefficients is presented in Table 5 and indicates only one (moral distress) of the 10 variables significantly contributed to the model.

Table 5 Simultaneous Regression for Nurse Staffing Scale Score on Predictor Variables

Unstandardized Coefficients/Standardized Coefficients

Model	*B*	*Std. Error*	*Β*	*t*	*p*
Constant	2.38	1.02		2.27	.02
Respondent's age	-.017	.021	-.118	-.804	.442
Respondent's gender	.384	.358	.085	1.072	.285
Respondent's religion	-.044	.051	-.067	-.862	.390
Respondent's marital status	.084	.112	.059	.752	.453
Approximate number of years worked as a nurse	.004	.021	.033	.213	.832
Approximate number of years worked in this unit	.007	.012	.052	.582	.562
Respondent's work status	.002	.054	.002	.033	.973
Resigning due to moral distress	.545	.292	.141	1.865	.064
Compassion Fatigue/Secondary Trauma	.010	.014	.054	.698	.486
Moral Distress Scale Score	.194	.066	.224	2.941	.004 *

Note. $p = < .05$

Further regression results indicate the overall model significantly predicted the Medication Administration Error Subscale of Disagree with Definition, $R^2 = .13$ $R^2_{adj} = .07$, $F(10, 164) = 2.49, p < .00$.(Table 6). This model accounts for thirteen percent of the variance in the MAE subscale of Disagree with Definition. A summary of regression

coefficients is presented in Table 6 and indicates moral distress scale score, compassion fatigue, and respondents work status were the only variables significantly contributing to the model.

Table 6 Simultaneous Regression for Disagree with Definition Scale Score on Predictor Variables

Unstandardized Coefficients/Standardized Coefficients

Model	*B*	*Std. Error*	*Β*	*t*	*p*
Constant	2.15	1.02		2.09	.038
Respondent's age	.026	.021	.183	1.26	.207
Respondent's gender	-.065	.358	-.014	-.182	.856
Respondent's religion	-.031	.051	-.047	-.608	.544
Respondent's marital status	-.154	.112	-.106	-1.37	.171
Approximate number of years worked as a nurse	-.037	.021	-.272	-1.77	.077
Approximate number of years worked in this unit	.013	.012	.097	1.08	.279
Respondent's work status	.121	.054	.165	2.24	.026 *
Resigning due to moral distress	.042	.292	.011	.143	.887
Moral Distress Scale Score	.153	.066	.174	2.31	.022 *
Compassion Fatigue/ Secondary Trauma	.033	.014	.177	2.32	.021 *

Note. $p < .05$

A third model was generated. Regression results indicated the overall model significantly predicted the Medication Administration Error subscale score of Fear, $R^{2.} = .132$. $R^2_{adj} = .07$, $F(10,164) = 2.50, p < .00$ (Table 7). This model accounts for thirteen percent of the variance in Fear Scale score. A summary of regression coefficients is presented in Table 7 and indicates the MDS score contributed significantly to the model. None of the other variables significantly contributed to the model.

Table 7 Simultaneous Regression for Fear Scale Score on Predictor Variables

Unstandardized Coefficients/Standardized Coefficients

Model	*B*	*Std. Error*	*Β*	*t*	*p*
Constant	3.71	1.04		3.54	.001
Respondent's age	-.008	.021	-.057	-3.92	.696
Respondent's gender	-.428	.365	-.092	-1.175	.242
Respondent's religion	.045	.052	.066	.855	.394
Respondent's marital status	.090	.114	.061	.787	.432
Approximate number of years worked as a nurse	-.007	.021	-.051	-.332	.740
Approximate number of years worked in this unit	.005	.012	.039	.436	.663
Respondent's work status	.075	.055	.100	1.36	.174
Resigning due to moral distress	-.365	.297	-.092	-1.22	.222
Compassion Fatigue/Moral Distress	.025	.015	.128	1.68	.094
Moral Distress Scale Score	.249	.067	.278	3.70	.000 *

Note. $p < .01$

Aim #3: Develop a broader understanding of how critical care nurses experience the phenomena of perceived medication administration error related to moral distress and compassion fatigue.

Qualitative data was obtained through one focus group interview with five participants from the area where the primary investigator resides. The primary investigator transcribed tapes and interview data were reviewed for prominent themes.

Question #1 How has your work environment implemented medication error reduction strategies?

Themes that emerged from the data comprised two aspects. Reduction of medication errors involved *process changes* and nursing work *practice changes. Process changes* involved things that were done to the process of medication administration. Process changes were identified as the medication delivery system, changes to medication administration records, or availability and use of medication reference materials and implementation of unacceptable abbreviation monitoring.

Work *practice changes* were related to changes in the nurses work flow when giving medications. Practice changes were identified as double checking medications with another nurse, computerized double checks of medications, cosigning when particular medications were hung or changed for patients, medication reconciliation forms, and pharmacists mixing intravenous medications.

#2 In your perception as practicing nurses, what do you think the central issue is with nurses making medication errors?

Themes emerging in the second question were *staff* and *support*. Participants spoke at length about the number of inexperienced nurses on the units and the lack of support structures in place for sustaining new or inexperienced nurses. Participants reported factors influencing medication errors were new graduate nurses or new nurses in the ICU, pressure from nursing managers to get the new nurses out on the units before they were competent, knowledgebase of the new nurse, and inexperienced staff and higher acuity patients. Deficient *Support* structures cited were computer down time, pharmacy delays, no extra hands to help out, and increased paperwork. Nurses also spoke of a *disconnect* with the nurse manager in that the manager did not appear to recognize the inexperience of the staff. "*Once you walk out that door and go over to administration, you know mahogany row, there is a huge disconnect* ... "When asked why the manger could not see the disparity the nurses replied *"if they are not in that element they do not understand the daily grind"*. The participants spoke then of the relational aspects that they enjoyed within nursing (for example, sitting and talking with patients) those they no longer had time for within the current context of care.

#3 What types of feelings have you experienced related to medication errors? Perhaps your own or others?

Participants consistently described *negative emotions* that had primarily affected them in their nursing practice. Descriptors such as horror in response to a grave medication error by another, frustration and anger at the way it was handled, devastation,

fear, and *the worst thing that might happen* were discussed related to other nurses' errors. The participants also discussed the difference they observed in some nurses' responses to medication errors. Some discussed nurses who felt so badly they discussed leaving nursing due to the error and others who were a little sad but justified or rationalized their actions in response to the error. Interviewees labeled this as a *lack of compassion or remorse.*

#4 Are there resources available on your work units to help you deal with or help anyone deal with those thoughts and frustrations that you mentioned?

Overwhelmingly, the participants' listed two resources – one was the *employee assistance program* which provided short term counseling to the staff for stress and work related issues and feelings another resource was *other nurses.* The interviewed nurses felt strongly that fellow nurses who had become friends and were *like your family, they're the ones that know what it is like*. In the same response participants also spoke of mentoring new physician staff and coaching them in patient treatment. As an example one participant related *the thing is the physician wrote it but it doesn't matter- you have to think, and you think that's an incorrect dose and you call 'em and say you know did you mean this?... because you wrote this...*

#5 If you had to sum up what measures would improve or reduce medication errors what are some things that you would suggest?

Factors that emerged were of two categories, *support* and *working conditions*. Support factors dealt with the infrastructure, items such as pharmacy mixing medications

and improved medication administration records, an environment of medication safety, temporary nurses, and more pharmacists at night. The working conditions cited by participants were, preceptors that were *burned out*, inappropriate assignments for inexperienced staff, fear of preceptors, and attitude of the staff working.

#6 How has the increase attention to medication errors affected your practice.

Two primary themes emerged. They were *surveillance* and *anxiety*. Surveillance related to more visits from regulatory agencies, increased scrutiny from patients and visitors. Anxiety related to an increase fear or distrust of staff and increased anxiety of staff caring for patients at the bedside.

#7 The last question deals with moral distress and compassion fatigue – if you think about moral distress as knowing the right thing to do but being unable to do it, and compassion fatigue as exposure to somebody else's trauma in such a way that it traumatizes you – do you think medication errors relate to either one of those phenomena and if you do, how do they- or if you don't, do you see them as separate issues?

Interestingly, participants initially related moral distress and compassion fatigue to end-of life situations and palliative care. Situations such as double effect created some unrest for participants. One other prominent theme emerged from the data as the interview progressed which represented *workings relations. Working relations* encompassed the nurses' need to work through physicians to obtain needed treatments for their patients. Participant number five expressed the following,

What about - do you guys ever have times that you think a patient should be on a certain drug and you can't get that because you can't get to the right doctor or they are resistant and participant #1 added ,

...you have doctors that play favorites- for you I will give you that, but I've seen where they will not give the orders to the new nurses ...

The participants also discussed relations with new nurses they were seeing on the units. *or it just does not seem right I'm a new nurse but my charge nurse told me to do it – give this nitro and the nurse gave the whole bottle and you know because that person is like already feeling bad- they are already afraid - so like the way that other people respond to them can send them either way....*

Summary

The themes identified from the focus group interview were work *practice* and *process* changes related to strategies for medication administration error reduction, *staff* experience and nursing *support* related to the central issues involved in nurse medication errors. *Negative emotions* was described in relation to feelings experienced related to medication errors, *employee assistance programs* and *other nurses* were related to resources available to help deal with the feelings. *Anxiety* and *surveillance* related to the effect of increased attention on medication errors, and *working conditions* was a theme related to measures needed to reduce medication errors. These identified themes add intensity and strength to the quantitative findings associated with this study.

Patient Outcomes

A need to measure the effectiveness of nursing care linked to nursing interventions influencing the patient outcome has become the hegemonic voice within the nursing profession and healthcare (Lang & Marek, 1991). The choice of outcomes for measurement has been driven by an increased need to attend to patient safety within the healthcare environment. Nurses face many challenges while caring for critically ill patients. Patient safety is the utmost of importance and is mandated by regulatory agencies (JCAHO, 2006). Quantification of medical error, specifically medication error (IOM, 1999) has become a patient safety outcome related to nursing care based on potential harm to patients. The gravity and implications of medication errors may influence the nurse in ways we do not have knowledge of.

As professionals in contract with society, nurses are responsible and accountable for maintaining a safe patient environment inclusive of the reduction of medication errors. Nurses' perceptions about medication errors and the self-report of moral distress and compassion fatigue are important to analyze because of the nurses' presence at the patient bedside and the social contract initiated with each patient. Any potential influences on the ability of the nurse to care and advocate for patients, a function central to nursing practice, is important to examine in the context of critical care.

Medication Error Perception

A purposive sample of 205 critical care nurses provided the data for this study. Overall, participants in this study represented the mean age (M = 47.48 years, *SD* 8.4) of the nurse currently working (46.8 years) (HRSA, 2007). The mean number of years

worked as a nurse reflected an experienced (years worked as a nurse M = 23.0, *SD* 8.4) and stable (years worked in this unit M = 13.6, *SD* 8.4) sample. Other demographic variables collected were not significantly related to moral distress, compassion fatigue, or medication error thus supporting the work of Corley (2001). However, ten percent of nurses indicated they were considering resignation related to the presence of moral distress in their current employment (n= 19 across multiple types of critical care units and patient populations).

Current findings support the horror and guilt at making a medication error supported by Arndt's (1994) qualitative approach to medication error. Nurses discussed the shame, guilt, and devastation experienced through medication error as a devastating event. The theme of *negative emotions* emerged from the data, suggesting a negative connotation associated with medication error reporting identified by focus group participants. Wakefield et al. (2005) reported fear as a cause of why medication errors were not reported as well.

Simultaneous regression revealed the proposed model including the variables of Compassion Fatigue, Respondent' work status, age, gender, religion, marital status, years worked as a nurse, years worked on this unit, moral distress score, considering resignation based on moral distress, explained 13% of the variance in Fear Scale Scores of the MAE and the Moral Distress Scale score was the only variable to significantly contribute to the model. Thus one notes over 85% of the variance is not explained – rather there are other factors which may have greater explanatory power. Additionally, correlations within the MAE scales and the Moral Distress Scales demonstrated several weak but statistically significant correlations (Nursing Staffing r = .26, Disagree with

Definition r = .23, Reporting Effort r =.16, Fear r = .25, Administrative Response r = .16) indicating the distressing effects of medication error.

Within the theme of *negative emotions,* the consequences of medication error were discussed within the focus group. Results mirrored the findings of Serembus, Wolf, and Youngblood (2001). Findings of guilt and fear were reported by the nurses (2001) and within the focus group. Walker and Lowe (1998) also spoke to the reporting of medication errors and found nurse's motives for self-preservation influenced the percentage of errors reported. The MAE findings supported that 57.5% of nurses indicated 40% or fewer medication errors are actually reported on their units. Mayo & Duncan (2004) similarly found nurses reported less than 50% of medication errors. Findings would suggest a higher moral distress scale score may predict more fear related to reporting errors. MAE items within the subscale Fear relate to feelings of nurse incompetence, blame for the error, fear of reprimand, and adverse consequences for error reporting. Addressing these areas may assist in reducing fear and increasing reporting of error.

For nursing staffing score, simultaneous regression revealed 11% of the variance was explained by the model which included Compassion Fatigue, Respondent' work status, age, gender, religion, marital status, years worked as a nurse, years worked on this unit, Moral Distress Score, considering resignation based on moral distress. The Moral Distress Scale score was the only variable that significantly contributed to the model. Identified in the interview data as the theme of *support,* and identified as a central issue to explain why medication errors occur in critical care. A statistically significant positive correlation was found between the MDS and the Nurse Staffing Scale (r= .26, p = .00 r

=.34, p=.00, r =.34, p=.00) and supports the work of Sundin-Huard and Fahy (1999) who found nurse staffing and experience were a central theme in moral distress in critical care nursing. Other studies have not addressed nurse staffing directly, although within the context of this study focus group data clearly indicated that *support* in the form of additional individuals present to share in workload of the nurse was seen as a positive experience. Staffing may also be a factor in reporting effort. Reporting Efforts subscale items included too much time to report the error and too much time to contact the physician regarding the error. Walker and Lowe (1998) identified nurses were more likely to report medication errors if patient safety was compromised. Additionally, Wakefield et al. (2001) found reporting was less prominent in hospitals that demonstrated a hierarchical structure and less quality improvement focus. Reporting effort may also be a function of the *support* available on the unit. The theme of *support* of staff was demonstrated within the current study. A possible explanation for not reporting may be if the nurse perceives that the effort to report is too burdensome because there is not enough staff support in place. Although patient safety is a current priority, time away from the bedside to report error may be viewed as unmanageable or morally distressing within the context of care. Reporting effort was not identified as a strategy implemented to reduce medication error within the focus group interview data.

Subscales items contained within the MAE addressed nurses being pulled or transferred to other units, and interruptions during medication administration. Further study in the area of the nurses' perception of nurse staffing and minimizing distraction during medication administration may minimize the distress of the nurse is necessary.

Simultaneous regression revealed the proposed model including the variables of Compassion Fatigue, Respondent' work status, age, gender, religion, marital status, years worked as a nurse, years worked on this unit, Moral Distress Score, considering resignation based on moral distress, explained 13% of the variance in Disagree With Definition Scale score. The Moral Distress Scale scores (p = .02) and Compassion Fatigue/ Secondary Trauma (p= .02) scores were the only variables that significantly contributed to the model. Items within the Disagree with Definition subscale address medication errors as not being clearly defined, the nurse not recognizing the error and nurse not thinking the error important to report. As demonstrated by Walker and Lowe (1998) nurses were not likely to report medication errors if errors were minor deviations from the original order written. Self-preservation had been identified as a theme for not reporting errors previously. Current interview data did not support the theme of self-preservation however, the theme of *negative emotions* was identified and further work on the definition of medication error within the context of critical care may be supportive. Agreement on the definition of error may be a facet useful in increasing the reporting of error. Current structures within the healthcare environment may preclude practitioners from participating in committees that define or classify medication errors. Inclusion of critical care nurses in these activities may add clarity to the process.

Level of Moral Distress may influence Medication Administration Error perceptions. The understanding of medication administration as a complex process with many facets needs further exploration to determine their significance in the broader landscape of patient safety.

Medications administration is a primary responsibility of the nurse however many factors related to medication administration are not within the scope of the nurse's role. This study attempted to identify behavioral variables that may influence the medication administration process. Findings indicate sources outside of these identified factors (moral distress and compassion fatigue) account for more of the variance than the studied factors themselves. Further research is warranted to determine other factors that influence medication administration error perception within critical care. Medication error is a multifaceted process that changes with each implementation strategy; therefore, it is imperative that bedside practitioners most intimate with the medication administration process be involved in exploring various aspects of medication error reduction, implementation and evaluation.

Moral Distress

Moral distress was measured in three domains, the overall scale score, a frequency, and an intensity scale. Moral distress within the current study was demonstrated to be moderately high. Measured within range from 0-7 current participants mean score was 3.89 (*SD* 1.36) while frequency was low (M = 1.6, *SD* = .70), however intensity was high (M = 5.52, *SD* 1.69). Supported within the qualitative data, nurses' described findings related to the theme of ***negative emotions*** experienced when relating to medication error such as *frustration, anger, fear,* and the *worst thing*. Kalvemark et al (2003) supported these findings, as well as, those dealing with a lack of supporting structures in place to assist nurses with medication error reduction. Additionally, negative

emotions were also prominent in the work related to moral distress of Wilkinson (1988), Austin, Bergum and Goldberg (2003), and Sundin-Huard and Fahy (1999).

Meltzer and Missak-Huckabay (2001) found statistically significant positive correlations in their work on moral distress. Emotional exhaustion was correlated with moral distress and futile care ($r = .31$, $p = .05$). Findings from the current study support findings less highly correlated but significant results with compassion fatigue and burnout scale scores. Interestingly, in the current study when asked about the relationship of medication errors to moral distress or compassion fatigue participants identified end–of life issues as morally distressing. Focus group data supported the theme of *working conditions* and identified relational issues between physicians and nurses such as *playing the game* to obtain the orders needed to care for the patient, and feeling bad for new inexperienced nurses in critical care. Participants did not specifically identify medication errors as morally distressing however; they did identify physician relational issues to obtain appropriate medication orders as challenging.

Moral distress was identified as a significant variable in Medication Administration Error perception. Moral distress accounted for a small percentage of the variation in Medication Administration Error therefore, further research needs to address what other variables are able to account for the variance in Medication Error Perception and strategies involving nurses need to de developed address the variance.

Compassion Fatigue

This was the first attempt at measurement of compassion fatigue with the context of critical care nursing. Compassion fatigue has been documented in crisis (Wee &

Meyers, 2003) and emergency workers (Boscarino, Figley & Adams, 2004) and pediatric nurses (Maytum, Bielski-Heiman & Garwick, 2004) however measurement in critical care has not been accomplished. Measurement of compassion fatigue within the current study was measured with the ProQOL. The sample (N = 201) scored moderately high (M = 40, *SD*= 6.8) on the Compassion Satisfaction Scale score (range 8-50) indicating a higher degree of satisfaction over the preceding 30 days. Participants scored moderately (M = 21, *SD* = 5.7) on the Burnout Scale score (range 6-45) and low (M = 13.8, *SD* = 6.5) on the Compassion Fatigue/Secondary Trauma (range 2-45) Scale score. When regressed with the MAE scales, specifically the Disagree with Definition Scale score, the Compassion Fatigue (β = .177, p = .02) and Moral Distress Scale score (β= .174, *p* = .02) explained thirteen percent of the variance in scores.

Current findings indicate that the Moral Distress Scale score (*r* = .19, *p* = .00), intensity (*r* = .28, *p* = .00), and frequency (*r* = .28, *p* = .00) demonstrated weak but statistically significant correlations with the Burnout Scale score and the Compassion Fatigue/ Secondary Trauma Scale score (MDS Scale *r* =.14, *p* = .04, Intensity *r* = .21, *p* = .00, and Frequency (*r* = .21, *p* = .00). The association of these scales had not been found in the literature however, further examination and understanding would provide a more detailed understanding of this process.

Statistically significant positive correlations between the ProQOL scale scores and the MAE Scale scores were demonstrated. The Burnout Scale score and the Nurse Staffing Scale score (*r* = .289, *p* = .00), Disagree with Definition Scale score *(r* = .19, *p* = .00), Fear Scale score (*r* = .20, *p* = .00) and the Administrative Response Scale score (*r* = .21, *p* = .00). The Compassion Fatigue/ Secondary Trauma Scale score was significantly

and positively correlated with the Transcription Related Scale score (r = .15, p = .03) the Nurse Staffing Scale score (r =.14, p = .04), Disagree with Definition Scale score (r .19, p = .00) and the Fear Scale score (r .17, p = .01). Administrative Response Scale scores (r = -.149, p = .04) were negatively correlated with the Compassion Satisfaction Scale score.

Simultaneous regression analysis demonstrated Compassion Fatigue/Secondary Trauma score as a variable predictive in the Disagree with Definition Scale score (p = .02). Because there have not been other studies examining these phenomena exploring this findings in light of medication error administration is warranted.

Summary

This study adds to nursing science by describing the level and relationship between moral distress, compassion fatigue, and perception of medication error in critical care. Moreover, the mixed method approach afforded by this study assisted in the understanding of nurses' perceptions of medication error, moral distress and compassion fatigue. Overall, Moral Distress Scale scores and the ProQOL Scale score of Compassion Fatigue / Secondary Trauma predicated thirty seven percent of the variance in the MAE Scale scores. Demographic variables did not assist in explaining variance in this sample. Several statistically significant, positive, weak correlations were demonstrated and focus group interview data themes added clarity to the understanding of medication error perception, moral distress, and compassion fatigue in one small sample critical care nurses.

Research Strengths and Limitations

Although patent safety initiatives are imperative within the healthcare system the effect of changes incurred with the adoption of medication error reduction strategies and nurses' perception of medication error has not been well studied. This work sought to make an initial assessment of the effect on medication error perception on moral distress and compassion fatigue of the nurse. Moral distress and compassion fatigue were selected due to their potential negative effects on the nurse and potential negative effects for the patient. Moral distress has been studied in critical care whereas compassion fatigue has not. Furthermore, the nurses' perception of medication error has not been studied in relationship to these phenomena.

Several important limitations to the research were identified. The primary limitation was the use of a non-experimental design and non-random sampling along with a single point in time for measurement of moral distress, compassion fatigue and medication administration error and focus group interview. A return rate of approximately 20% may have introduced bias or participants may have self-selected themselves and influenced the findings. Although the sample was specifically critical care nurses represented by a national survey the snowball sampling procedure for small qualitative study may have introduced regional variation or social desirability bias. Interpretation of statistical data may have diminished the various dimensions encountered within moral distress and compassion fatigue, and medication error perception. Interpretation of the instrument instructions by participants may have also altered findings and statistical or themed findings may be subject to other interpretations.

Regional variations in medication error strategies or implementation of such may have influenced findings as well. Further research is needed to help clarify these issues.

Although there are limitations to the study, the following strengths need to be emphasized. Strengths include the use of a mixed methodology to assist in understanding the dimensions of medication administration error in a national sample of critical care nurses and the initial reporting of findings related to compassion fatigue in critical care nurses. The identification of relationships between moral distress, compassion fatigue, and perception of medication error in critical care and the addition of focus group interview findings within this study helped to corroborate and underscore the importance of addressing moral distress and compassion fatigue among this sample of nurses. In addition, regarding whether or not compassion fatigue and moral distress are highly related, multicollinearity was assessed and not demonstrated within the findings of this study.

Conclusions

Patient safety, specifically medication administration safety is vital to critical care nurses. Specifically, this study indicates that moral distress and compassion fatigue are significant phenomena in the study of medication error. Addressing specific areas that influence issues of nurse fear, staffing, disagreement with definition and reporting effort need to be addressed as one factor to improve medication safety.

Implications for Nursing Practice

Critical care nurses self-report of moral distress and compassion fatigue are important considerations when addressing medication administration error. Findings related to the disagreement of medication error definition indicate the voice of the nurse

may often go unheard regarding this important issue. Examples of moral distress related to medication error reverberated through out the interview data. Descriptors such as horror, devastation, and fear were commonly reported. The theoretical framework and work of Agamben, as well as prior literature, supported that indeed the nurse herself may be at risk for identification as zoe or bare life status by the dominant unit or organizational culture prevalent within healthcare (Arndt, 1994; Sundin-Huard & Fahy, 1999; Gibson, 2001). Indeed, the working status of the nurse at the bedside in conjunction within the current power structure in place provides the setting that isolates and often leaves the nurse feeling inadequate or *bad* as the result of a medication error. Therefore, careful survey of the work environment for sources of power relations within critical care and marginalization need to be identified and ameliorated (AACN, 2004).

Another implication may be that further education or explanation on what constitutes and medication error is needed. Many forms of educational preparation for nursing exist leading to potential variations in definition of medication error in practice. Targeting these factors may clarify or increase medication error reporting.

Addressing items identified as fear producing for critical care nurses is essential. Findings demonstrate the implementation of a blame-free culture has not occurred within this setting. Increased efforts are required to reduce fearful elements in order that medication errors may be reported and system issues may be addressed in a non-punitive manner for nurses.

Nurse staffing needs to be clearly understood. Respondents reported a lack of support available as a central theme in why nurses make medication errors. Further study

related to what nurses find supportive is necessary to provide the support structure within the healthcare system to reduce medication errors.

Future Research

The concept of medication administration error perception and patient safety are newer trends within healthcare therefore the need for further study is great. According to this study the variance in MAE Scale scores was minimally explained by moral distress scale scores and compassion fatigue scale scores. Further study is required to determine other sources of influence. Moral distress was not reported to occur frequently although intensity was quite high, specific studies outlining cause of moral distress need to be conducted. Compassion fatigue scores were low within this sample however; compassion fatigue did contribute significantly to the explanatory model which explained a small percent of variance in MAE scale score, Disagree with Definition. Further study is recommended to determine if critical care nurses in other locations identify compassion fatigue within their work environment.

Although great improvements have been made in patient safety, the nurses' perception of medication administration error in the critical care setting, moral distress and compassion fatigue warrant further study. The power relations demonstrated require further study related to the environment of care which may support the marginalization of the nurse. To promote progress in the arena of decreasing medication error, the direct involvement of bedside nurses in the definition, education, and implementation of medication error reduction strategies is indispensable.

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Appendix A: Cover Letter: Quantitative Portion of the Study

(Current date to be inserted)

Dear Critical Care Registered Nurse:

I am a doctoral candidate at the University of San Diego, California and I am interested in critical care nurses perception of medication errors, moral distress and compassion fatigue in nursing. I would greatly appreciate your participation in this study. I have enclosed 4 short survey forms to complete and a consent form. The time it takes to complete them will be approximately 1 hour and you are encouraged to fill them out in a quite area away from your area of work. Please consider your last 30 days of works when filling out the forms. If you choose to participate, please send them back to me within the next 2 weeks.

Your participation is **completely voluntary. You may stop or withdraw from the study at any time without repercussion to your employment, participation in the American Association of Critical Care Nurses, or access to healthcare.**

All of your information will be kept confidential and no further attempts will be made to try to contact you. Each form is coded with a number for confidentiality. ***Please do not put your name on any of the forms***. Upon receipt, the signed consent form will be separated and kept in a locked secure storage area. Each survey has written instructions for completion. Please fill each form out completely and **return all the questionnaires and one copy of the signed consent form to me (keep the other for your files) in the self-addressed stamped envelope provided for you.**

Sometimes reflecting on our experiences as nurses brings feelings such as anxiety or sadness. If you would like to talk to someone about your feelings, please contact the National Mental Health Hotline at 1-800-273-TALK (8255). This is a 24-hour hotline available that will route your call to a local mental health crisis line and provide immediate assistance to anyone seeking assistance.

By completing the surveys you will be assisting in the furthering of nursing knowledge and facilitating how nurses perceive medication errors, moral distress, and compassion fatigue and how they affect the work of the nurse in critical care. If you have additional questions or would like to discuss the study with me, please e-mail me at jgmaiden@cox.net or phone me at

(619-889-3542)

Thank you in advance for your participation in this valuable project! Looking forward to hearing from you. Jeanne Maiden RN, PhD(c.)

University of San Diego

jgmaiden@cox.net

Enclosures (4)

Appendix B: Open End Interview Questions

Code Number_____

1) How has your work environment implemented medication error reduction strategies?
2) In your perception, what is the central issue related to / involved with nursing medication errors?
3) What feelings have you experienced related to medication errors (perhaps your own or errors you have learned about on your unit)?
4) Was there any resource available to you to discuss those feelings?
5) What measures could help improve or reduce medication errors for nurses?
6) How has the increased attention to medication errors affected your professional practice?

Appendix D: Interview Participant Informed Consent

Research Participant Consent Form
A Quantitative and Qualitative Inquiry into Moral Distress, Compassion Fatigue, Medication Error, and Critical Care Nursing

IF YOU DECIDE TO PARTICIPATE, PLEASE READ, SIGN, AND
KEEP ONE COPY OF THIS FOR YOURSELF

Jeanne Maiden is a doctoral student in Hahn School of Nursing and Health Science at the University of San Diego at the University of San Diego. You are invited to participate in a research project she is conducting for the purpose of exploring moral distress, compassion fatigue, and critical care nurses perception of medication error.

The project will involve filling out surveys in a sample of critical care nurses. Your filling out the surveys will take less than 60 minutes and will also include some questions about you, such as your age and type of patients cared for. Your participation is entirely voluntary and you can refuse to answer any question and/or quit at any time. Should you choose to quit, just throw these forms away. If you decide to quit, nothing will change about your employment or employment status, membership in the American Association of Critical Care Nurses, or access to health care. We suggest that you choose a quiet and private place to fill these forms out. Please remember not to put your name on any of the survey forms.

The information you give will be analyzed and studied in a manner that protects your identity. That means that a code number will be used and that your real name will not appear on any of the study materials. All information you provide will remain confidential and locked in a file cabinet in the researcher's office for a minimum of five years before being destroyed.

There may be a risk that filling out the forms may make you feel tired. R*emember, you can stop to take a break and come back to the forms another time.* Sometimes people feel anxious or sad when thinking about or reflecting on the things you will be asked about on the forms. If you would like to talk to someone about your feelings, you can call the National Mental Health Hotline at 1-800-273-TALK (8255). This hotline is available 24 hours a day.

While there is no direct benefit to you from participating, you will be helping nurses and other healthcare personnel learn how nurses perceive medication error, moral distress, and compassion fatigue in critical care nurses.

If you have any questions about this research, please contact Jeanne M Maiden at 619-889-3542 or her professor, Dr Cynthia Connelly, at the University of San Diego School of Nursing at 619- 260-4548.

I have read and understand this form, and consent to the research it describes to me. I have received a copy of this consent form for my records.

_____ _____

Signature of Participant Date

_____

Name of Participant (**Printed**)

_____ _____

Signature of Principal Investigator Date

Appendix E: Demographic Information Form

DO NOT PLACE YOUR NAME ON THIS FORM

Demographic Form **Code Number_____**

Instructions: Please fill in the blank or place a check mark next to the response most appropriate for you

1. Age _____

2. Gender: Male _____ Female ____

3. Religious affiliation: Catholic_____ Protestant_____ Jewish _____

   Buddhist_____ Muslim_____ Other _____

4. Marital Status: Never Married: _____ Married_____ Separated_____

   Divorced_____ Widowed _____

5. Approximate number of years worked as a nurse ____

6. Approximate number of years worked in this particular unit_____.

7. Type of unit currently working in _____

8. Type of patients cared for_____

9. Work Status: Full time____ Part time_____Full Year ___ Part Year ____

   Per Diem _____

10. What is the approximate number of hours worked by nurses in your unit? _____

11. Nursing was my ____ career choice. (Select one): 1st , 2nd, 3rd

12. Are you considering resigning from your current position because of moral distress?

    Yes_____ No _____

Appendix F: Moral Distress Scale

MORAL DISTRESS SCALE

Code Number _____

Moral Distress is defined as a painful feeling and/or psychological disequilibrium caused by a situation where:

1) you believe you know the ethically appropriate action to take, and

2) you believe you cannot carry out that action because of institutionalized obstacles, such as lack of time, supervisory disinterest, medical power, institution policy or legal limits.

This scale measures your perceptions on two dimensions:

1) level of moral distress, and

2) frequency of this situation

The following situations occur in clinical practice. These situations may or may not cause moral problems for you.

Directions: For your current position, please indicate for each of the following situations, the extent to which you experience **MORAL DISTRESS** and its **FREQUENCY**.

		Moral Distress							Frequency						
		None						Great extent	None						Very frequently
		0	1	2	3	4	5	6	0	1	2	3	4	5	6
001	1. Follow the family's wishes for the patient's care when I do not agree with them but do so because hospital administration fears a lawsuit.														
002	2. Follow the family's wishes to continue life support even though it is not in the best interest of the patient.														
003	3. Carry out a physician's order for unnecessary tests and treatment.														
004	4. Assist a physician who performs a test or treatment without informed consent.														
005	5. Initiate extensive life-saving actions when I think it only prolongs death.														
006	6. Ignore situations of suspected patient abuse by caregivers.														
007	7. Ignore situations in which patients have not been given adequate information to insure informed consent.														
008	8. Carry out a work assignment in which I do not feel professionally competent.														
009	9. Avoid taking action when I learn that a nurse colleague has made a medication error and does not report it.														
010	10. Let medical students perform painful procedures on patients solely to increase their skill.														
011	11. Assist physicians who are practicing procedures on a patient after CPR has been unsuccessful.														
012	12. Carry out the physician's orders for unnecessary tests and treatments for terminally ill patients.														
013	13. Work with levels of nurse staffing that I consider "unsafe."														

014	14. Carry out orders or institutional policies to discontinue treatment because the patient can no longer pay.														
015	15. Continue to participate in care for a hopelessly injured person who is being sustained on a ventilator, when no one will make a decision to "pull the plug".														
016	16. Observe without taking action when health care personnel do not respect the patient's privacy.														
017	17. Follow the physician's order not to tell the patient the truth when he/she asks for it.														
018	18. Assist a physician who in your opinion is providing incompetent care.														
019	19. Prepare an elderly man for surgery to have a gastrostomy tube put in, who is severely demented and a "No Code".														
020	20. Discharge a patient when he has reached the maximum length of stay based on Diagnostic Related Grouping (DRG) although he has many teaching needs.														
021	21. Provide better care for those who can afford to pay than those who cannot.														
022	22. Follow the family's request not to discuss death with a dying patient who asks about dying.														
023	23. Providing care that does not relieve the patient's suffering because physician fears increasing dose of pain medication will cause death.														
024	24. Give medication intravenously during a Code with no compressions or intubation.														
025	25. Follow the physician's request not to discuss Code status with patient.														
026	26. Follow the physician's request not to discuss Code status with the family when the patient becomes incompetent.														

027	27. Not being able to offer treatment because the costs will not be covered by the insurance company.														
028	28. Increase the dose of intravenous morphine for an unconscious patient that you believe will hasten the patient's death.														
029	29. Respond to a patient's request for assistance with suicide when patient has a poor prognosis.														
030	30. Follow the physician's request not to discuss death with a dying patient who asks about dying.														
031	31. Follow orders for pain medication even when the medications prescribed do not control the pain.														
032	32. Work with nurses who are not as competent as the patient care requires.														
033	33. Work with nursing assistants who are not as competent as patient care requires.														
034	34. Work with non-licensed personnel who are not as competent as the patient care requires.														
035	35. Work with physicians who are not as competent as the patient care requires.														
036	36. Work with support personnel who are not as competent as the patient care requires.														
037	37. Ask the patient's family about donating organs when the patient's death is inevitable														
038	38. Be required to care for patients I am not competent to care for.														

Appendix G: ProQOL Instrument

ProQOL - R III

PROFESSIONAL QUALITY OF LIFE
Compassion Satisfaction and Fatigue Subscales – Revision III

Helping others puts you in direct contact with other people's lives. As you probably have experienced, your compassion for those you help has both positive and negative aspects. We would like to ask you questions about your experiences, both positive and negative, as a helper. Consider each of the following questions about you and your current situation. Write in the number that honestly reflects how frequently you experienced these characteristics ***in the last 30 days***.

0=Never 1=Rarely 2=A Few Times 3=Somewhat Often 4=Often 5=Very Often

_____1. I am happy.

_____2. I am preoccupied with more than one person I help.

_____3. I get satisfaction from being able to help people.

_____4. I feel connected to others.

_____5. I jump or am startled by unexpected sounds.

_____6. I feel invigorated after working with those I help.

_____7. I find it difficult to separate my personal life from my life as a helper.

_____8. I am losing sleep over a person I help's traumatic experiences.

_____9. I think that I might have been "infected" by the traumatic stress of those I help.

_____10. I feel trapped by my work as a helper.

_____11. Because of my helping, I have feel "on edge" about various things.

_____12. I like my work as a helper.

_____13. I feel depressed as a result of my work as a helper.

_____14. I feel as though I am experiencing the trauma of someone I have helped.

_____15. I have beliefs that sustain me.

_____16. I am pleased with how I am able to keep up with helping techniques and protocols.

_____17. I am the person I always wanted to be.

_____18. My work makes me feel satisfied.

_____19. Because of my work as a helper, I feel exhausted.

_____20. I have happy thoughts and feelings about those I help and how I could help them.

_____21. I feel overwhelmed by the amount of work or the size of my caseload I have to deal with.

_____22. I believe I can make a difference through my work.

_____23. I avoid certain activities or situations because they remind me of frightening experiences of the people I help.

_____24. I plan to be a helper for a long time.

_____25. As a result of my helping, I have intrusive, frightening thoughts.

_____26. I feel "bogged down" by the system.

_____27. I have thoughts that I am a "success" as a helper.

_____28. I can't recall important parts of my work with trauma victims.

_____29. I am an unduly sensitive person.

_____30. I am happy that I chose to do this work.

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Appendix H: Medication Administration Error Instrument

Medication Administration Error Survey

The purpose of this survey is to seek input, based on your clinical experience, from the charge and staff nurses on the occurrence and reporting of medication administration errors and the extent to which errors are reported on your unit. This survey will take approximately 5 - 10 minutes to complete. All responses is kept strictly confidential. Thank you for your time and cooperation!

Definition of Medication Administration Errors (MAEs): For the purposes of this survey, MAEs are defined as errors related to the actual ingestion, injection or application of individual medication doses (e.g., wrong method of administration, wrong patient, wrong additive).

A. Reasons Why Medication Errors Occur On Your Unit. Please circle the number that best reflects the extent to which you agree that the following reasons contribute to why medication errors occur on your unit.

	Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree
1. The names of many medications are similar.	1	2	3	4	5	6
2. Different medications look alike.	1	2	3	4	5	6
3. The packaging of many medications is similar.	1	2	3	4	5	6
4. Physicians' medication orders are not legible.	1	2	3	4	5	6
5. Physicians' medication orders are not clear.	1	2	3	4	5	6
6. Physicians change orders frequently.	1	2	3	4	5	6
7. Abbreviations are used instead of writing the orders out completely.	1	2	3	4	5	6
8. Verbal orders are used instead of written orders.	1	2	3	4	5	6
9. Pharmacy delivers incorrect doses to this unit.	1	2	3	4	5	6
10. Pharmacy does not prepare the med correctly.	1	2	3	4	5	6

	Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree
11. Pharmacy does not label the med correctly.	1	2	3	4	5	6
12. Pharmacists are not available 24 hours a day.	1	2	3	4	5	6
13. Frequent substitution of drugs (i.e., cheaper generic for brand names).	1	2	3	4	5	6
14. Poor communication between nurses and physicians.	1	2	3	4	5	6
15. Many patients are on the same or similar medications.	1	2	3	4	5	6
16. Unit staff do not receive enough inservices on new medications.	1	2	3	4	5	6
17. On this unit, there is no easy way to look up information on medications.	1	2	3	4	5	6
18. Nurses on this unit have limited knowledge about medications.	1	2	3	4	5	6
19. Nurses get pulled between teams and from other units.	1	2	3	4	5	6
20. When scheduled medications are delayed, nurses do not communicate the time when the next dose is due.	1	2	3	4	5	6
21. Nurses on this unit do not adhere to the approved medication administration procedure.	1	2	3	4	5	6
22. Nurses are interrupted while administering medications to perform other duties.	1	2	3	4	5	6
23. Unit staffing levels are inadequate.	1	2	3	4	5	6
24. All medications for one team of patients cannot be passed within an accepted time frame.	1	2	3	4	5	6

	Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree
25. Medication orders are not transcribed to the Kardex correctly.	1	2	3	4	5	6
26. Errors are made in the Medication Kardex.	1	2	3	4	5	6
27. Equipment malfunctions or is not set correctly (e.g., IV pump).	1	2	3	4	5	6
28. Nurse is unaware of a known allergy.	1	2	3	4	5	6
29. Patients are off the unit for other care.	1	2	3	4	5	6

B. Reasons Why Medication Administration Errors Are Not Reported On Your Unit. Please circle the number that best reflects the extent to which you agree that the following reasons contribute to why errors are not reported on your unit.

	Strongly Disagree	Mod. Disagree	Slightly Disagree	Slightly Agree	Mod. Agree	Strongly Agree
30. Nurses do not agree with hospital's definition of a medication error.	1	2	3	4	5	6
31. Nurses do not recognize an error occurred.	1	2	3	4	5	6
32. Filling out an incident report for a medication error takes too much time.	1	2	3	4	5	6
33. Contacting the physician about a medication error takes too much time.	1	2	3	4	5	6
34. Medication error is not clearly defined.	1	2	3	4	5	6
35. Nurses may not think the error is important enough to be reported.	1	2	3	4	5	6
36. Nurses believe that other nurses will think they are incompetent if they make medication errors.	1	2	3	4	5	6
37. The patient or family might develop a negative attitude toward the nurse, or may sue the nurse if a medication error is reported.	1	2	3	4	5	6
38. The expectation that medications be given exactly as ordered is unrealistic.	1	2	3	4	5	6
39. Nurses are afraid the physician will reprimand them for the medication error.	1	2	3	4	5	6
40. Nurses fear adverse consequences from reporting medication errors.	1	2	3	4	5	6
41. The response by nursing administration does not match the severity of the error.	1	2	3	4	5	6
42. Nurses could be blamed if something happens to the patient as a result of the medication error.	1	2	3	4	5	6
43. No positive feedback is given for passing medications correctly.	1	2	3	4	5	6

	Strongly Disagree	Mod. Disagree	Slightly Disagree	Slightly Agree	Mod. Agree	Strongly Agree
44. Too much emphasis is placed on med errors as a measure of the quality of nursing care provided.	1	2	3	4	5	6
45. When med errors occur, nursing administration focuses on the individual rather than looking at the systems as a potential cause of the error.	1	2	3	4	5	6

C. Percentage of Each Type of Error Reported on Your Unit. Based on your experience, please circle the number that best represents what percentage of each type of medication error you believe is actually reported on your unit.

	Percentage Reported									
Types of Non-IV Medication Errors	0 - 20	21- 30	31- 40	41 - 50	51 - 60	61 - 70	71 - 80	81 - 90	91 - 99	100
46. Wrong route of administration	1	2	3	4	5	6	7	8	9	10
47. Wrong time of administration	1	2	3	4	5	6	7	8	9	10
48. Wrong patient	1	2	3	4	5	6	7	8	9	10
49. Wrong dose	1	2	3	4	5	6	7	8	9	10
50. Wrong drug	1	2	3	4	5	6	7	8	9	10
51. Medication is omitted	1	2	3	4	5	6	7	8	9	10
52. Medication is given, but has not been ordered by the physician	1	2	3	4	5	6	7	8	9	10
53. Medication administered after the order to discontinue has been written	1	2	3	4	5	6	7	8	9	10
54. Given to patient with a known allergy	1	2	3	4	5	6	7	8	9	10
Types of IV Errors										
55. Wrong method of administration	1	2	3	4	5	6	7	8	9	10
56. Wrong time of administration	1	2	3	4	5	6	7	8	9	10
57. Wrong patient	1	2	3	4	5	6	7	8	9	10
58. Wrong dose	1	2	3	4	5	6	7	8	9	10
59. Wrong drug	1	2	3	4	5	6	7	8	9	10

	0 - 20	21- 30	31- 40	41 - 50	51 - 60	61 - 70	71 - 80	81 - 90	91 - 99	100
60. Medication is omitted	1	2	3	4	5	6	7	8	9	10
61. Medication is given, but has not been ordered by the physician	1	2	3	4	5	6	7	8	9	10
62. Medication administered after the order to discontinue has been written	1	2	3	4	5	6	7	8	9	10
63. Given to patient with a known allergy	1	2	3	4	5	6	7	8	9	10
64. Wrong fluid	1	2	3	4	5	6	7	8	9	10
65. Wrong rate of administration	1	2	3	4	5	6	7	8	9	10

66. Based on your experience, what percentage of **all types of medication errors**, including IV and non-IV medication errors are actually reported on your unit (please circle one)

0 - 20%	21 – 30%	31 – 40%	41 – 50%	51 – 60%	61 – 70%	71 - 80%	81 - 90%	91 - 99%	100%